The Day-Dawn of the Past:

THE

DAY-DAWN OF THE PAST.

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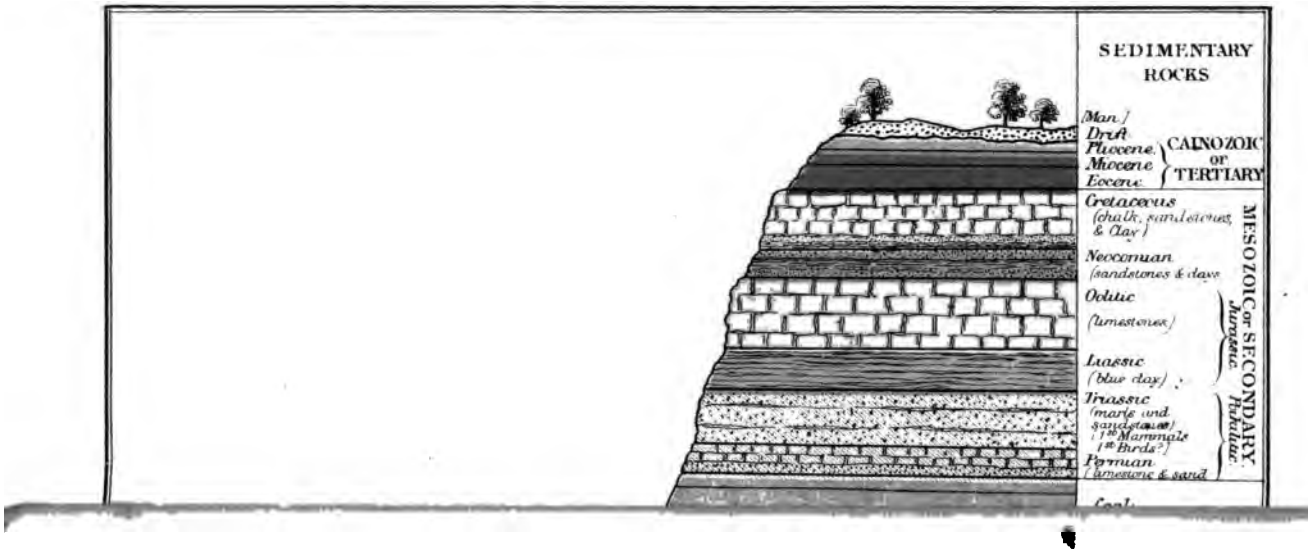


THE

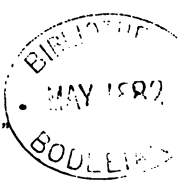
DAY-DAWN OF THE PAST:

BEING A SERIES OF

Six Lectures on Science and Revelation as seen in Creation.

Delivered in Connection with a Sunday Afternoon Bible Class.

By AN OLD ETONIAN.



"Thy Word is true from the Beginning."

LONDON:
ELLIOT STOCK, 62 PATERNOSTER ROW, E.C.
1882.

GLASGOW:
PRINTED BY H. NISBET AND CO.,
STOCKWELL STREET.

To the Dear Fellows

WHO, BY THEIR CORDIAL FELLOWSHIP AND PRAYERS,

HAVE UNDER GOD'S BLESSING

MADE OUR BIBLE-CLASS WHAT IT IS,

THIS STORY OF THE PAST IS DEDICATED BY ONE

WHO HOPES

EVER TO BE THEIR TRUE AND LOVING FELLOW-LABOURER

IN THE

WORK WHEREIN THEY BOTH HAVE SO MANY

BRIGHT AND HELPFUL MEMORIES.

PREFACE.

—o—

PERHAPS the simplest preface I can write will be a short statement as to the origin of these lectures. It has long been my privilege to conduct a Bible-Class of some 200 or 300 young men, mostly mechanics, many of whom I have known intimately from their boyhood. Some of the members of this class expressed a wish that I should for a few Sundays vary the more directly religious line of our readings by explaining to them certain points in connection with Inspiration and Science, which were being discussed in no very friendly spirit in the shops where they worked.

This I have attempted to do in the present course of lectures which were prepared without any idea of publication for general reading, but as those to whom they were addressed seemed to

think they might be useful in some such shape as this, I have put them together in their present form. In doing this I have not altered to any great extent the colloquial style in which they were delivered, nor have I cut out the short resumés at the commencement of some of the chapters, as my wish was, in the first place, to reproduce for my class what they heard.

I am aware that some object to the discussion of subjects like those with which I have attempted to deal in my first lecture. It must, however, be borne in mind that such decisions do not always rest with us. The question in my case was, not whether such points should be raised, but whether being raised they should be fairly met, and their shallow nature exposed. There are men with whom some of our young mechanics daily work, who delight in doing all that in them lies to ridicule and bring to contempt the holiest and most sacred subjects; who, attempting to take the ground of superior knowledge, loudly proclaim that with increasing education Christianity will vanish

as darkness before the rays of the rising sun. To support this view history is distorted, Scripture perverted, and the fact that this very education which they profess to value so much, owes its present position not to infidelity, but to the unpaid efforts of Christian men, is studiously concealed.

Believing as I do with my whole heart that the kingdom of our Redeemer has no foe so deadly as ignorance, and no human ally so potent as knowledge, I have always encouraged our members to discuss their difficulties fairly with me, and I hope that the mutual confidence thus established has been helpful to both of us.

Of course, as one who has spent nearly twenty years in mission work, I recognise most fully that the best, nay, the only satisfactory basis of faith, is that which is experimental and practical, and starts from the Cross of our Blessed Lord; but at the same time we must be prepared to give a reason for the hope that is in us, and while God shows us much that is *beyond*, He asks us to believe nothing that is *against* our reason.

No claim is made for originality or literary merit in these lectures; I have used freely the brains of others more competent than myself to speak with authority on the matters in hand, and my object has not been so much to present new truth as to state in plain and popular language scientific and Biblical facts which are admitted by all.

Those who have had the advantage of a liberal education will of course find little here beyond what they already know. My audience was of a class which had been obliged to make education a secondary consideration to trade requirements, and to such an one only is this book addressed.

While conscious that many could do the work I have attempted far better than myself, I feel sure that one class of readers, at least, will accept it in the spirit in which it is offered, and that by the old and present members of the class that I have read and prayed with so often, this little book will be received, not so much on its merits as a memento of the many happy hours we have spent together.

That these Bible readings may be the means of helping some honest hearts in the workshops and offices of our great city to a better appreciation of the glorious truths contained in the Word of God is my earnest hope and prayer.

LONDON, *December, 1881.*

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"Now I must tell you a great and awful truth which ignorant Christians fear to confess, and by overdoing tempt men to infidelity. The Scripture is like a man's body where some parts are for the preservation of the rest, so the sense is the soul of Scripture, the letter is but the body."—BAXTER (author of "Baxter's Saints' Rest").

"In the first place you must bear in mind of what parts the Bible is constructed. The greater portion of it is historical, and those who believe the sacred historians to be under the guidance of the Holy Spirit understand but little of the nature of history to expect anything so unreasonable."—ARCHBISHOP WHATELY.

"If a man use his faculties and nevertheless arrive at an error, he is more acceptable to God than he who, not seeking it before, shall stumble on the truth, or remain in the truth in which he was born without prizing it."—JOHN KNOX.

OUR subject this afternoon is "the Inspiration of the Scriptures," and I have been led to take it by conversations which I have had with some of our members, and by hearing from them the ideas they held on the subject. Exposed as so many of you are to the possibility of hearing what you hold to be most sacred spoken lightly of in your workshops or offices, it is beyond everything necessary that you should be able to take up a proper and right line of defence as regards the Holy Scriptures; and it seems to me that the Bible often suffers more at the hands of its defenders than it does from the attacks of its assailants. We have seen in the texts that we have referred to, and which I have striven to make fairly representative ones, what the Bible claims for itself, and it is well for us to see whether we can admit these claims, and place them on a solid rock of fact, and also to take care that our line of defence does not run outside that assumed by the Scriptures themselves.

Do not imagine that my desire is to urge you to controversy or argument. Such a course is rarely wise or fruitful, for the end of most arguments is to leave the disputants as far off an agreement as when they started. My object is to give you such an intelligent knowledge of your Bibles as to enable

you to come out unscathed from the attacks of others, and by assisting you to take up a reasonable position as to the authority of the Scriptures to enable you to see how very shallow and trivial most of the antagonistic arguments really are. In dealing with this question I shall not this afternoon touch upon the "sure word of prophecy," potent as it is when rightly handled; nor shall I go into the questions connected with Genesis and creation, as I intend to take up these latter points in subsequent lectures. My object now is to enquire with you, by the light of Scripture and human reason, what is meant by inspiration as applied to the Bible, and the best means of testing its reality.

Born in this country, we find ourselves face to face with a book claiming to be inspired beyond all others, and to contain utterances as regards the way of salvation and other spiritual truths which may be taken as the direct commands or invitation of the Most High. We turn to its pages and we find that not only does it claim to be an inspired book, but that it is in itself a book of wonderful pathos, and marvellously beautiful diction. We find passages which reach our hearts as words from no other book have ever reached them, and others again which, while laying bare the sinfulness of human nature, exhibit a breadth and depth of divine love reaching beyond its utmost needs. We see that on it many of the laws of our country

are formed, and that it has been the chief agent in victories which have been won by no other human or inspired record, such, for instance, as the emancipation of women from the low position in which they are still kept in non-Christian countries, and the redemption of slaves. In addition to all this, when we follow the book into our own homes, we find that on its words our parents have been accustomed to rest their souls' salvation, that its utterances have brought comfort to the dying hour, and afford us unhesitating assurance of a meeting place beyond the grave. Such being the position taken up by the Bible, and admitted by most of those with whom we come in contact, we are at first inclined to be shocked and angry when we meet with men who refuse to admit all this, who tell us that they can see nothing superhuman in the Bible itself, and that it is worth neither more nor less than many similar volumes to be found amongst other nations making somewhat similar claims. Now the men who speak thus may be divided into two classes: first, and much the largest class, those who wishing to do evil find it inconvenient to acknowledge the authority of a book that strongly condemns their mode of life; and secondly, those who honestly find some difficulty in understanding the nature and extent of inspiration. With the first class we have nothing to do this afternoon, our business lies exclusively with the second.

Let me say then, in the first place, that it is no

possible good to abuse a man because he cannot believe the same as you do. You might just as well abuse him for catching the small-pox, or suffering from yellow fever, or any other epidemic that happens to be in the air. Let us hope the world has grown beyond the day when the honest questions of the human heart were met by priests with threats of damnation. Put yourself for a moment in the place of a man who really has some difficulty in connection with the Bible, which the teaching he has received in his boyhood does not meet. Suppose for instance you were in a Mahometan country, and a Mahometan missionary came to convert you to the authorised faith of the realm. He brings to you a book called the Koran, which he tells you is an inspired volume, and he assures you that salvation is only to be reached by a certain man called Mahomet, who lived some twelve centuries ago, and whom he describes to you as a special emissary from God to the human race. I can imagine the conversation that would take place between you and such a missionary; what a sceptic you would be, and how you would demand proof upon proof as to the truth of his claims. He would tell you that Mahomet had a dream. "Well," you would answer, "so do I have dreams." "But Mahomet's dreams came from God." "How do I know that?" you would answer, and he would assure you that it was blasphemous to compare your dreams with those of Mahomet, Mahomet

being such a very much greater man than you. "Granted," you might reply, "Mahomet was a greater man than I am, and probably had greater dreams, but how do I know they came from God?" The missionary, if he followed the example of some of his Christian *confreres*, would wind up by telling you that he *knew* it came from God, and therefore it must be true. You would deny the assertion, and he would tell you that you must believe or be damned. Or again, he might tell you the old story of Mahomet standing in the midst of his congregation, and a dove coming down from heaven and whispering inspiration in his ear. You would reply that you had heard that Mahomet used to put peas in his ear to attract the dove. "The peas are all a lie," he would say. "The inspiration is all a lie," you would answer, and you would be no nearer coming to an agreement than when you started. To put the matter plainly, if you were to argue with a Mahometan about his creed, you would expect your doubts as to its credibility to be met courteously and fairly, and when you meet a man having the same doubts as to the authenticity of your revelation, you should be prepared to meet him with something more than idle threats of damnation, or mere assertions of your own. Now it is a fatal thing for a man's own peace of mind and honesty of purpose to allow unsolved doubts to lie dormant in his heart. It is far better if you have any difficulties to face them fairly, and know the

worst of them, than to profess adherence to certain facts which you only half believe, and which in no way influence your conduct in life.

My object this afternoon is to see if we cannot arrive at some fair conclusion as to what the Bible really is, and as to the position which we ought to take up as to its inspiration. If we can come to some satisfactory conclusion, the result will be that your feet will be firmly put upon a rock which no waves of doubt or infidelity will be able to reach. You will have got a truth and made it *your own*, believing it, not because you have heard it from other people, but because you have fairly worked it out in your own mind, and tested the worst that can be said against it. In doing this we must deal with the Bible just as we should with any other book. I am at a loss to imagine how we are to search God's Word if we are not to apply to it exactly the same rules of criticism which we should apply to any other work. "But," some one will call out, "Is not this presumption; is it not a presumptuous thing to question the truth of God's Word?" Now this appears to me to be a most fatal mistake. It *is* a presumptuous thing to question God's ways when once we know them to be such. It would be a presumptuous thing for you or for me to question God's wisdom in having allowed sin to enter into the world, or his mercy in allowing death to cut short lives which we value; but it is not presumption, surely, honestly to endeavour to

find out what his will is, or to search carefully and critically every word that professes to come from him. If this be presumption, then let us be presumptuous. We have no meaner authority than Christ himself to authorise such a search. "Judge ye yourselves what is right," he says. Depend upon it you will be called to account for the use of your one talent of reason as well as for any other talent that you may possess. You must stand or fall by the light and ability God has given you. Let us take an example. Suppose you were to meet an exile far away from his native land, and he was to receive a letter purporting to be from the father whose home he had left so long ago. Would you blame him if he were carefully to examine the handwriting to make sure from whom it came? Or would you think it presumptuous if he were to require internal evidence as to the truth of the letter—that the writer of it should show a proper acquaintance with events that had happened in his youth, with the deeds with which his father must needs be conversant, and with the letters which he himself had written home? They tell us we are exiles far off from our heavenly home, and we are given a letter or book purporting to come from our Father. Let us, then, in a careful and reverential spirit search and see whether this letter bears such marks as we should expect to find in it. Let us see whether it shows a Creator's knowledge of the creature's heart, whether it be wholly from the

Father's hands, or whether amongst the long list of human messengers through whose hands it has passed it has contracted any human element or lost any of its original meaning.

First, then, assuming for a moment that there is nothing grossly improbable in the fact that a God of love should send some inspired communication to his children, let us see what marks we should expect such communication to bear, remembering that in such a search we can only be guided by human reason, and that God would never ask us to accept anything which ran counter to the dictates of the only means of judging with which he has endowed us. I think we may look certainly for two points—(1) we should expect that God would not inspire anyone to tell us the things that we could discover for ourselves, and that therefore his revelation would be confined to spiritual truths not otherwise attainable by human wisdom; and (2) we should expect that the effect of such spiritual truths on the human race would be to elevate it and draw it nearer to God.* Now, with these two assumptions to start with, and the words of the Bible itself to guide us, let us see whether the book answers to our expectations, and if not, to what extent it fails.

* I have no space to put in the argument by which we arrived at these two propositions. They are, however, I think, sufficiently obvious.

At the very threshold of our investigation we are met by this difficulty, that there are two distinct interpretations as to the meaning of inspiration. One set of people, happily, I believe, a very small set, hold that every word in the Bible is the directly inspired utterance of God himself; whilst others, while admitting that the Bible *contains* the inspiration of God, consider the words used not to be inspired, holding that such inspiration would be impossible inasmuch as the book has been constantly copied, and some mistakes, small or great, are inevitable, while it would apparently be a pure waste of inspiration to inspire a book written in a language scarcely used amongst the nations of the world unless each and every translation of the Bible into all the modern languages were equally gifted. This brings me to the point to which, I think, at anyrate some of our members, require to give a little thought. No greater injury could be inflicted upon the Bible than to claim for it any position which can manifestly be shown to be absurd, nor could you run any greater risk yourself than in building up your faith on an entirely erroneous view of the Scriptures, and one which, when you find its inability to stand even the most ordinary rules of cricitism, may bring to wreck not only itself but also your belief in the holy truths which you imagine to be dependent on the false position you had taken up. Now, I do not wish to overstate or misstate the belief

that some who uphold what is called "plenary inspiration" profess. They state "every word and syllable is the direct utterance of the Most High;" and again that "Paul needed as much inspiration to ask for his cloak when he felt cold, as he did to teach the infant Christian churches the truths of God." Let us see whether this view corresponds either with the claims of the Bible, or with the assumptions of what we agreed it would be reasonable to expect in an inspired book or with their own conduct.

Take the latter first. If *every word* is inspired, why do we find these people keeping Sunday the first day of the week instead of Saturday the seventh day, when they have, or profess to have, the direct utterance of God in favour of the latter observance, whereas no quotation from the Book can be given that even indirectly authorises a departure from it? But you may argue this is Old Testament. Granted. Then turn to Acts xv. 20, and you will find the apostles met in solemn conclave, specially desiring of the young converts to abstain from "things strangled, and from blood." I don't think you will find any of the good people holding plenary inspiration will have any difficulty when the shops three months hence are filled with strangled animals from taking their slice of roast turkey because of the Divine prohibition. Many similar examples will occur to you. I have given you these two to prove that the holders of plenary

inspiration to the fullest extent, are really not consistent with their own view of God's Word.

Now let us test it by the claims of the Bible itself. I will turn first to a text which you often hear quoted in connection with this, and which it is well for us to understand. I refer, of course, to 2 Tim. iii. 16. The verse in our authorised version runs, "All Scripture is given by inspiration of God, and is profitable," etc. You will notice that the word "is" is in italics, which means that it is not in the original Greek, and if you turn to the new version, you will see that the real translation is, "All Scripture given by inspiration of God is profitable," etc. — a wholly different statement. If you cast your eye on the texts with which you started, you will find that in none of them, and, to the best of my belief, in no part of the Bible, is any inspiration claimed for its merely historical parts. You find that the prophets spoke "moved by the Holy Ghost"; but where do you find, even by inference, that the writer of the Book of Kings was inspired to say that 7000 men went out to battle instead of 8000, or that a certain king reigned 20 years instead of 21? Inspiration would be wholly unnecessary on those points; and therefore, unless it is distinctly claimed, we may assume that it would not be given. What useful purpose would be served by God inspiring a contemporary historian to write down facts with which he was thoroughly conversant? Would not such an inspi-

ration be in direct contradiction with God's ordinary method of dealing with the world, and, as far as we can judge, wholly unnecessary? If, however, such plenary inspiration were given, we ought at any rate to find the most absolute exactness as to facts, for where God speaks, there is no room for uncertainty. Turn to your Bibles for a minute, and let us see whether this is so. In 2 Samuel xxiv. 24, David is stated to have paid to Araunah for the threshing-floor and oxen fifty shekels of silver. In 1 Chronicles xxi. 25 you will find it stated that he paid 600 shekels of gold. "What," you ask me, "do you say that the Bible contradicts itself?" "Not at all," would be my reply; very possibly the fifty shekels were paid as earnest money, and the balance paid afterwards; or it is a copyist's error—at any rate, if the two historians could be brought together, some explanation could be arrived at; and meanwhile such discrepancies prove that the one book is not a mere copy of the other, which would certainly be the case were either writer acting dishonestly.

Again, in 2 Samuel xxiv. 9, we are told that, when David numbered the people, the fighting men in Israel and Judah numbered 1,300,000; in 1 Chronicles xxi. 5, you will find it stated that they numbered 1,570,000. Here very probably the two historians dealt with different areas, one missing out the two and a half tribes residing to the east of Jordan, or, perhaps, one included the standing

army, and the other did not. Again, if you turn to 2 Sam. xxiv. 13, you will find that David was offered the choice between seven years' famine, three months' pestilence, or three days' defeat; whereas in 2 Chron. xxi. 12, it is represented to be three years' famine, three months' pestilence, and three days' defeat, probably a mistake having occurred in copying one or other of the statements. In 2 Chron. xxii. 2, you find it stated that Ahaziah was forty-two years old when he began to reign, which would make him just two years older than his own father, who, having ascended the throne at thirty-two, and reigned eight years, was only forty when he died. In 2 Kings viii. 46, you find that Ahaziah was twenty-two when he mounted the throne, which is clearly the right statement, forty-two being, of course, an error in copying.

In Numbers xxv. 9, we are told that 24,000 people died at Baal Peor; in 1 Corinthians x. 8, Paul tells us that 23,000 died, probably quoting from memory, and thinking the exact figure immaterial, as indeed it was. Indeed, you will find in most cases where quotations are made in the New Testament, the exact words as we have them in our Old Testaments are not used, the speakers contenting themselvers with using words conveying the same meaning. Now little discrepancies, such as we have noticed, are exactly such as you would expect where two perfectly honest men are writing an account of the same event, or if a book had to be copied by a

great number of fallible human beings. They in no way detract from the value of God's Word, neither do they prove anything whatever against it. But how about plenary inspiration? What would be the use of such an inspiration when it was not kept up for the benefit of the copyists who occasionally made varying statements. Perhaps you will say these are mere trifles. So they are, but it is exactly such trifles that men lay hold of when they want to attack the truth of Scripture. You will find fifty references to such trifling errors of copyists, or to such historical stories as Baalam's ass, or Jonah's whale, for every one fair attempt to improve on the revelation of God given us by our blessed Lord.

I have insisted much on this point, because words fail to express the importance I attach to your loving and reverencing the book which we are considering; and I feel that you could go no surer way to lose your faith in it altogether than to claim for it an unnecessary and untenable inspiration; nor could you expose yourself more fatally to the replies of those whom you would fain convince. You must not think that what I am telling you is anything new or unorthodox, or evolved out of my own brain. The idea of plenary inspiration has long been condemned by some of the ablest and most saintly men of the Christian Church. Let me give you two quotations from authors whose names will be well-known to you. One shall be a Nonconformist, the other shall be an Archbishop.

Baxter of "Baxter's Saint's Rest" says:—"Now I must tell you a great and awful truth which ignorant Christians fear to confess, and by overdoing tempt men to infidelity. The Scripture is like a man's body where some parts are for the preservation of the rest, so the sense is the soul of Scripture, the letter is but the body." Now for Archbishop Whately—"In the first place, you must bear in mind of what parts the Bible is constructed. The greater portion of it is historical, and those who believe the sacred historians to be under the guidance of the Holy Spirit understand but little of the nature of history to expect anything so unreasonable." The Scriptures have seldom had more devoted readers or plainer exponents than the two men whose opinions I have quoted, and I can say Amen to what they have written with my whole heart. As Baxter says, the letter is but the body—it may perish and pass away, but the spiritual truths taught in the Scriptures shall not pass away. Like the soul of man, they will remain long after the body has crumbled to dust.

A very natural objection, however, for you to urge would be, "If this view of the purely historic portions of the Bible is correct, what use can there be in including them in the Scriptures at all; why are they not left out, and the Bible confined to moral truths which you say you believe are all inspired?" Now I want your careful attention to this point, for it is an argument which at first

appears to have some weight in it. The reply, however, is sufficiently obvious if you carefully examine the question. It is perfectly clear that God's message to any man is a perfect one to him in the circumstances in which he is at the moment placed, but this very fact may prevent it being a perfect one, or even a suitable one to men placed in other circumstances. Let me explain myself beyond misconception on this point. Supposing a man to be in the state of mind that David was when, realising his sin in the murder of Uriah, he returns heartbroken to his house and pens the 51st Psalm; a message from God that would comfort him and assure him that, deeply as he had sinned, there was yet pardon and mercy to be found if he forsook his evil ways and returned to his God, would yet be wholly unsuitable to a man in such a position as was Hezekiah when he found that Sennacherib's army had been destroyed, or Solomon when he was opening the temple.

As a matter of fact the Bible contains messages suitable to all kinds and conditions of men, and to every conceivable state of the human heart, but the messages require to be properly chosen, and are no more universally applicable than is any one drug in a chemist's shop to all kinds of disease. Before, therefore, you are in a position to thoroughly appreciate any message from God to man, it is necessary for you to ascertain the conditions in which the man or nation was to whom the message was

originally sent. For instance, how unintelligible the 51st Psalm would have been had we not known what the historical books tell us of David's previous life. It was, therefore, an absolute necessity that some historical sketch should be given us before we could properly understand or appreciate the words emanating from the Eternal Father. The historical portions of the Word exactly fulfil this need, and so long as we can assure ourselves that they were written by honest men, and give us in the main a substantially correct account of events, it is wholly immaterial to us whether they are inspired or not. This being the case, and as I have shown that no claim is made for inspiration, and further, that such small inaccuracies occur in them as might be expected to appear in a human production, we may fairly conclude that the view taken by Baxter and Archbishop Whately is the more rational and correct one.

Are we, then, to argue from this that a man who is not inspired to give us historical information is also uninspired as to moral truths,—*i.e.*, does it necessarily follow because a man is not miraculously able to distinguish between a crowd of *5000* or *8000* men, that he will be equally unable to discern the will of God and to teach us spiritual truths? Surely your own experience in life must teach you the reverse of this. Whose book is it which, perhaps next to the Bible, has become a household volume in every English cottage? Is it that of some

wonderfully scientific man, or did it come from the honest, rugged nature of John Bunyan the Bedford tinker? Do we not all of us know some humble-minded, earnest servants of God who, though perfect ignoramuses at mathematics or science, are yet wonderfully versed in spiritual things—men who would be wholly unfit in historical or scientific matters to teach, perhaps the youngest of those here present, and yet at whose feet you could sit with abundant profit and advantage as they told you, with a tongue in one sense inspired by God's Holy Spirit, what great things the Lord had done for their souls.

You may ask me, however, is there no danger in thus dealing with the Bible? May we not grow to think lightly of its counsels, and to deal carelessly with its reproofs? I would reply that, as far as Christians are concerned, no possible new light that you could get on the origin of the historical works could rob you of the personal experiences you must all have of the precious power the Scriptures possess of supplying and satisfying the needs of your souls. In the hearts of those of you who know something of the power of the Holy Ghost in your own lives the truths and precepts of the Scriptures, and the blessedness of the atonement of which they tell, are knit in to you as parts of your being. Your experience has made them *your own*. Of those who, on the other hand, know nothing of Christ, who are strangers to the gospel and aliens from the

commonwealth of the Spiritual Israel, I ask you if the view which they pretend to hold of the inspiration of the Scriptures has *now* any power over their lives? What danger can there be of injuring the hold of the Scriptures on men over whom, under present circumstances, they have no power?

The fact is, that no mere head knowledge of the Scriptures, no mere barren creed, however orthodox, ever yet saved a man or ever will. We must remember that the power of the written word has to be learned like the redeeming power of the living word by a personal inspiration—in other words, by the power of the Holy Ghost. This gift of his spirit, this personal light to shine on our paths, is God's free gift to all who seek. To plead that because the framing ot the picture is not of God, the picture itself is worthless, is a mere subterfuge, until a man has tried and tried in vain that changeless promise of God which comes to us through the mouth of the Apostle James—"If any of you lack wisdom, let him ask of God who giveth liberally and upbraideth not." I say, then, that honestly searching the Scriptures, in the light of common-sense, can do harm to none if commenced in a reverent and teachable spirit; to Christians it can but bring out in still further relief the blessed truths which they have already learned to love; to the unconverted, because there exists in every human heart a silent spiritual monitor, which

answers to the pure teaching of the Word of God as surely as the needle to the pole.

Possibly, however, another objection might occur to some, viz.—How are we to test the Scriptures if you tell us that the historical and scientific portions are not necessarily inspired? to what proof can we put the Bible to assure us whether or no it is the Word of God? I reply that you can put it to the surest of all proof, one far easier and more conclusive than you could hope for by examining it in the light of history or science. The education of but few men is sufficient to enable them to cover the whole ground gone over by Scripture, but when we come to the spiritual truths, then we have something we can test, and that in the simplest and most efficient way. "Blessed are the pure in heart, for they shall see God." Be pure in heart, and try whether or no your vision will be unclouded to see God in a hundred places where you have never seen him before. "Come unto me all ye that labour and are heavy laden, and I will give you rest." Try that first. Come to Christ in the way he has told you, and see if you do find rest for your souls. "Blessed are the peacemakers." Be a peacemaker, and see if the peace of God does or does not fill your heart as a consequence. If you will only adopt this method of testing the Word, you need fear but little any attempts to overthrow your faith, and you yourself will ever be a more potent and conclusive

evidence than any argument you can adduce as to the truths of Christianity.

Thus far I have appealed more to your head than to your heart, but when you begin to test the Bible in the manner I have described, you will find that head and heart alike will be blessed by such a search. In the words of Solomon you will find that when thou goest it will lead thee, when thou sleepest it will keep thee, when thou wakest it will talk with thee. No gain that you could get would compensate you for the loss of the truths of this book. Without it, death would be dark indeed, and your worship could only be to an unknown God.

Treasure then this word as you treasure your life. Treasure it not only because you have been told by others that it is inspired by God, but because you have proved this inspiration a hundred times in your daily life, because you have found its utterances draw you into God's presence as no words ever spoken by man have yet done. If you come to it in such a spirit, it will talk to you in very truth. Do you tell it that your sins are more in number than the hairs of your head? It will tell you that "He himself bore our sins in his own body on the tree." Do you tell it that "the enemy comes in like a flood"? It will reply, "the spirit of the Lord will lift up a standard against him." If you complain that you are "poor and needy," it will whisper to you that "the Lord careth for you."

Do you stand by the grave of those you love best on earth? It will tell you of one who is a "father to the fatherless," and of him who said, "I am the resurrection and the life, he that liveth and believeth on me shall never die."

On such grounds as these, then, above all others, do I believe in the inspiration of this blessed book. We have found it as we expected we should, confining its inspiration to spiritual truths, and we have found these truths to bless and guide us, and reveal (literally to draw away the veil from) God's love; and having found it to help and bless us on earth, we may expect when we wake in that land which we have been taught to call our home, to find there the truths written in this book, evidenced by myriads of redeemed souls who have "washed their robes and made them white in the blood of the Lamb," according to the sayings of "the glorious gospel of the blessed God."

II.

IN THE BEGINNING—*GOD.*

"In the beginning God (Elohim) created the heaven and the earth."—Genesis i. 1.

"The worlds were framed by the Word of God, so that things which are seen were not made of things which do appear."—Heb. xi. 3.

"I have long thought that the inspiration of the Scriptures (which I do not attempt to define) could be sufficiently established from the first chapter of Genesis alone."—Right Hon. W. E. GLADSTONE.

AT our last reading we dwelt upon Inspiration in general, and considered the extent to which the Bible as we now possess it can be truthfully called the Word of God. The conclusion we then came to was, that there was nothing at all unreasonable in the supposition that God should make a revelation to man, but that were such a revelation made, it would probably be characterised by two features—(1) That the revelation itself would not be intended either for scientific or historical purposes, but would be mainly confined to spiritual truths which could not have been arrived at by ordinary human wisdom—at any rate, by any race of men who have yet existed; and (2) That the effect of such revealed truths would be to draw men nearer to God, and elevate and bless the whole race.

With these two conclusions in our minds, we propose now to consider the opening verses of the Bible, and to see whether the assertions that some of you have heard made, viz., that the Bible and science are opposed to each other are true, or whether if common sense is used by both parties in interpreting the inspired written word on the one hand, and the inspired book of nature on the other, the two inspirations will not be mutually supplementary and helpful.

Before we proceed any further, let us look for one moment at the idea which some of you may perhaps have heard upheld, viz., that the world was really made in six ordinary days of twenty-four hours each. I need not tell you that such a contention is wholly absurd and in the face of every teaching of reason and science; but I want to show you from the Bible itself that such a conclusion cannot be sustained. In the first place, turn to Genesis ii. 4, where you will find "in *the day* when the Lord made the heavens and the earth." If, therefore, we are to take the six days of creation as literal days, we must necessarily take "the day" spoken of in this verse as a literal day also, and the Bible would be made to contradict itself.

Now turn to the ninetieth Psalm, which curiously enough is ascribed to Moses, and which certainly bears all the marks of his handiwork. You will there find (verses 1-4) Moses referring to the Creation as having taken an immense space

of time. In verse 2 the thought of "ever lasting" is evidently in the writer's mind, and he refers to the time when the earth and the world was made as though it represented ages, winding up in verse 4 with the assertion—"A thousand years in thy sight are but as yesterday when it is past." Peter uses the same figure (2 Peter iii. 8) when he says, "Be not ignorant of this one thing, that one day is with the Lord as a thousand years, and a thousand years as one day." Again (in Job xviii. 20) we read, "They shall be astonished at his *day*"—of course, meaning the age wherein he lived, and (in Job xv. 32) "it shall be accomplished before his *time*," the Hebrew word being the same as is translated "day" in the other place. Added to this you will notice in this first chapter of Genesis that the seventh day had no night, and therefore must be still continuing. Paul evidently understood the truth in this light, for (in Heb. i. 2) he says that by Christ God "made the worlds," the Greek word translated "worlds" being "æons" or ages (of creation).

I need not dwell further on this subject—especially as we shall come across more conclusive arguments when we have to consider the events of the fourth day. I only adverted to it thus early because I knew that one or two of our members felt some little difficulty in the matter. Of course most of you are well aware that so far from six days or even six thousand years being sufficient

for the creation of the world, periods varying from ten millions to six hundred millions of years are considered necessary, by the various schools of scientists, before this planet could have assumed its present shape.

I want you to enter on your enquiry with your minds totally divested of any feeling of fear of, or antipathy to, scientific discovery. If this book that we hold in our hands is indeed as we believe it to be, the Word of God, it can only come out brighter and purer from searching enquiry and increased knowledge. It is absolutely impossible for two truths to contradict each other, and the rock book that is read by the geologist, or the starry book that is read by the astronomer, is just as truly inspired and just as undeniably the work of God as the written book, the value of whose counsels we have proved. Science rightly understood is nothing, more or less, than the proper use of God's most precious gift of reason, and woe betide that religion or faith which dares to set up its dogmas or priestly statements against the intelligence and reason of the human race. Of course scientific men may make mistakes like other people, and they are as liable to misread and misunderstand the rocks and stars as Christians have before now misread and misunderstood the plain counsels of the Word of God. We should not like to have the Bible held responsible for all the villany and evil that has been done by priests and kings in the

name of the Holy One of Israel, nor can we hold Science responsible for all the immature assertions or fallacious assumptions made in her name.

Let us then, as I have said, welcome Science as the Bible's best friend. Nothing but good can come to the human race from an increase of knowledge and wisdom, "for the Lord is a God of knowledge." We already owe much to the thoughtful labours of the great thinkers of the world. They have lightened man's work; they have lengthened his life, they have taught him the laws under which he must live if he is to keep well and strong; and ere they have done they will do this yet more for us, they will teach us how better to understand our Bibles, and give us a greater reverence for the God of Nature.

I can imagine some one starting this objection to the line that we have taken up—If God did not intend to give a scientific revelation, why did he tell us anything at all about the creation of the world? or, If he did write anything, why did he not give us a complete and perfect story of the creation at once? Now this objection, which looks a good one at first sight, you will find on examination to be very shallow. The story of the creation was not told us in order to prevent our using the truths written in the rocks, or to save the geologist from his patient labour, nor, I may say, for the gratification of idle curiosity. If you will look at the first chapter of Genesis you will

find it contains great spiritual truths, and if you will consider the circumstances under which these truths were enunciated, you will see how great their benefit was to the human race.

Let us commence with the first four words—"In the beginning God." That was the record which Moses gave to the nation which came from the Egyptian bondage. And what did that nation know of pure worship and true religion? We read in Ezekiel that they had served the gods of Egypt. Not only had they been degraded by the vile servitude, but they had been taught to consider the crocodile, the beetle, the cat, and other animals, as embodiments of deity and as representatives of God; indeed, you will remember that no sooner had Moses gone up to Mount Sinai than the people made a representation of God, and their wretched fancy could give no better a form than that of a calf. To such a people, then, how blessed and elevated a truth it must have been to have learnt from him who, as their liberator, stood forth as the prophet of the Most High, that "in the beginning" was God, and God alone. But surely, some of you may object, the human mind could have arrived at that truth without revelation. The question is not whether the human race *could* have arrived at the truth, but whether it ever did so.

The Egyptians, where Moses was reared, taught that Osiris (the sun) brought forth seven great gods (the planets), and these in their turn twelve

others (the signs of the zodiac), and these 28 more to preside over the moon, and so on. Indeed, you will find that in all ancient religions the original idea of one God seems to have got hidden and lost sight of in the multitude of man-created deities, which became the subjects of national worship. The Greek, with all his talent and love of beauty, filled heaven and earth with gods as licentious and evil as himself. The Romans could do no better than borrow the gods of the Greeks. The Chaldeans worshipped all the host of heaven. The Japanese teach that one of the gods dipping his spear into the ocean, let fall drops from its point, and made them into the islands of Japan; while the Hindoos tell us that creation started in a barren waste of water, stating that a germ in the water brought forth an egg which, in its turn, produced Brahma, who became Father of all the living.

So far, then, from man arriving at what we are apt to term such a simple truth as is given in the first verse of the Bible, we find that in spite of it he ran into every form of idolatry to such an extent that Max Müller (surely no friendly critic) feels obliged to admit—in his "Chips from a German Workshop"—"If we are asked how it was that Abraham possessed not only the primitive conception of Divinity as He had revealed Himself to all mankind, but passed through the denial of all other gods to the

knowledge of the One God, we are content to answer that it was by a special divine revelation." We have reason, then, to admit that the ancient world needed such a revelation as this we have just read —in it we get the great truth that animated the early patriarchs, that led Abraham to start forth a homeless wanderer from the plains of Chaldea, not knowing whither he went, but having faith in that God who was from "the beginning." I have endeavoured to show you the noble nature of this first great spiritual truth, and that it was worthy to have come forth from the Creator himself, and in doing so I have, I hope, answered the first question viz., "If no scientific end was intended, why the story of the creation was touched upon at all?"

Now for the second point, viz., why, if God did give a record, he did not furnish a complete and exhaustive scientific story? I will not repeat what I have already mentioned about the usual way of God's dealing with men, viz., that he places within their reach sources of knowledge, and then leaves them to attain to that knowledge by the use of the ordinary faculties with which he has endowed them. But there is another point to which I should like to draw your attention, viz., that it would have been wholly impossible for God to have given to the ancient world a complete story of the creation, unless he had wrought the stupendous miracle of miraculously educating men into a readiness to receive truths which they could not otherwise have apprehended

without many centuries of experience. I want to make this clear. In the ruins of Babylon, we find tablets which have been stamped with letters cut in wood, so as to give a clear and distinct impression in the clay tablets which formed the libraries of the Kings of Babylon. How wonderfully near printing the ancient Babylonians seem to have come, and yet because the popular mind was wholly unfit for such a magnificent discovery, it was not until twenty centuries had passed away that an almost similar application of wooden letters by a German mechanic at once led the world into the discovery of printing—a science which, because man was ready for it, seems to have leapt at once into full development. Nor was it only the Babylonians who missed this chance. In the British Museum you will find cut seals and devices among the Roman Remains, showing that they also had thus trembled on the brink of the discovery of printing, and had from similar causes failed to carry their first beginnings to their legitimate conclusions.

I say, then, that the state of men's minds, and of the education of the world was wholly insufficient to have enabled the races living in the days of Moses to have appreciated the truths of geology and astronomy, which alone make us able to understand the lessons which God has written on the rocks and in the skies; and I will venture further to say that had such a revelation been made to man, as, for instance, that the earth was round and moved

round the sun, some zealous copyist who would have been scandalised at such a palpable mistake occurring in the Sacred Book, would have put Moses right by stating that the earth was square and the sun moved round it. You smile at the idea; but do you remember how men in much more recent days have acted with regard to such truths. It is but two or three hundred years since Galileo, telling the world that this planet was round and was not the centre of the universe, had to kneel before the Pope and to say that his truths were "absurd, philosophically false, formally heretical, and contrary to the Scriptures." "Why," said the poor old woman who then filled the chair of St. Peter, "it is evident the earth cannot be round. Does not the Bible say that God (Psalms civ. 2) stretched out the heavens like a curtain?" How, then, can the earth be round? and as for the earth moving, why it is perfectly clear (in Psalms xciii. 1 and Psalms civ. 5) that the world 'cannot be moved.' Again, as for the sun moving round the earth, Eccles. i. 4, 5 tells us clearly enough that the sun rises and sets." Of course it is clear enough to us that such language is not used with any scientific purpose whatever, any more than our own expression of the sun rising and setting is meant to commit us to the opinion that the sun moves round the earth. Poor Columbus also, as you read in Prescott's history, was assailed with texts to prove that a belief in the existence of

America was absurd and impious—the mistake being in all these cases that men read the Bible in the light of their preconceived ideas, instead of studying nature and reading both it and the Word of God in a teachable spirit. We see, then, that at the Mosaic period an absolutely correct scientific record (which, by the bye, we have not got yet) would have been both useless and impossible, owing to the low state of popular knowledge at that time.

Now let us turn for a moment from the Scriptures to scientific records, and see if they have anything to say with regard to this first great truth of the Bible—that in the beginning God made the heavens and the earth. I don't want to puzzle you with long scientific terms, but just bear in your minds two truths—(1) That everything solid, liquid, or gaseous is composed of atoms. These atoms are too small to be seen, weighed, or dealt with, and so they are grouped together under the term molecules, a molecule being an infinitely small particle, utterly invisible to the naked eye, but consisting of many thousands of atoms. To give you an idea of the size of an atom, I may tell you that Sir Wm. Thomson estimates that if a drop of water was magnified to the size of our world, each individual atom making up that drop would be the size of a cricket ball. In solid matters these molecules stick close together, and appear to make one substance, such, for instance, as this desk, or the floor. In liquid matters the molecules glide over each other,

whereas in gaseous matters they have very little attraction for each other, and can go very much in independent directions. (2) Every substance must be either solid, liquid, or gaseous, and the chemist tells us that he can turn any solid substance into liquid or gaseous; any liquid substance into solid or gaseous; and any gaseous substance into solid or liquid. The agency which is used in changing the conditions of any substance is generally temperature, cold temperature causing things to become solid, hot temperature causing things to become liquid or gaseous according to its intensity. Let me illustrate this by a substance well known to all of you—water. By reducing the temperature sufficiently you can reduce it into a solid substance, viz., ice. Increase the temperature and you bring it back again into a liquid state; increase the temperature again above 212° and you get it into a gaseous form in the shape of steam. Now chemists tell you that this can be done with everything, that iron can be made liquid, or even gaseous, provided sufficient heat can be given; while recently in a French laboratory cold and pressure were so successfully applied to oxygen as to bring the gas from the retort as a jet of steel blue fluid.

Bear in mind these two truths, otherwise you will not understand in any way the scientific theory of creation. There are two separate sciences that have to be consulted in this matter—(1)

Geology, or the science of reading the rocks forming the planet on which we dwell. (2) Astronomy, or the science of understanding the laws that rule the heavenly bodies which we can discover by the aid of the naked eye or the telescope. Let us deal with them in order.

The Geologist will tell you that if you dig down beneath your feet in any spot you will pass through a series of clay, sand, chalk, or stratified rocks, *i.e.*, rocks in layers or strata, containing fossils and unmistakable marks of long deceased living animals or plants, the rocks themselves also giving evidence of having been deposited by water. Then you come to another series of rocks such as granite, gneiss, etc., called the old stratified rocks from whence all signs of life have been destroyed, owing to their having been completely altered by fire and steam. Below these you find beds of basalt or solid lavas, similar to those thrown up now-a-days by volcanoes. As you descend it grows hotter, and after the first hundred feet the temperature increases one degree for every fifty feet, until when you get between three or four thousand feet below the surface, you are unable to bear the increased temperature. Thus in Colorado and other silver mines, when they have got down over three thousand feet, men have to work in short shifts of a few hours each, as they become utterly exhausted by labour carried on in such a high temperature. In addition to this evidence of fire, you have the volcanoes clearly showing

us that in some places at any rate of the earth's crust, rocks still exist in a liquid state caused by intense heat. The geologist, therefore, tells us that without the aid of Scripture, he can arrive at this fact, viz., that the earth was once a white-hot ball rushing through space, that the rocks now existing in solid form, were once molten, and that this earth has arrived in its present condition by cooling down, a process which is still going on.

Now for the astronomer. If you turn to a chart of the heavens you will see that round our sun revolve a certain number of stars belonging to our solar system. These stars are called planets, and our whole solar system forms but one infinitesimally small corner of the celestial system. You can distinguish the planets any night from the fixed stars, in that the latter twinkle owing to their great distance, while the former shine with a steady light and are incomparably nearer than the nearest fixed star. I now direct your attention to our solar system alone for a few minutes, as in it you will be able to read the story of your own earth. In the first place, let us visit the sun. This huge source of light and heat represents on a large scale what our world once was in miniature. You would find on its surface an enormous depth of gas in a state of conflagration, the temperature being so terrific that our blast furnaces are cold compared to it. Over the face of the sun you would see raging fearful circular storms and tornados,

sometimes tearing asunder the gas and giving you a glimpse of the white heat within. So large are these chasms rent in the burning gas that they are visible from the earth in the shape of small black spots on the sun's surface really capable of holding two or three or more of our worlds. The whole atmosphere of the sun would be full of tumult and commotion. Thick clouds of metals, and rocks heated to a state of vapour would be whirling along together and belching out flames of hydrogen, &c., while oceans of liquid metal would be lashed with showers of iron hail and red-hot rain. A thunderstorm on earth is beyond the power of human art to reproduce on canvas; but what should we say of a thunderstorm on the surface of the mighty sun where the winds are flame, the billows molten metal, and the air lurid with the blaze of iron, nickel, sodium, and zinc? Round the sun itself revolve a countless stream of meteoric stones rushing on their way with enormous speed, and sometimes drawn into the bosom of the great sun itself.

In turning from the sun to the moon, you leave energy and motion for desolation and death. On the surface of the moon are neither winds, clouds, rivers, or seas. Vast plains of cinders broken with craters of extinct volcanoes give to everything one uniform ashen grey hue. Not a green leaf nor a jet of water, not the hum of insect life nor the song of bird breaks the deathlike

The Moon, shewing some of the Extinct Volcanoes.

stillness. Probably the only sign of life would be the dull puff of some expiring volcano like the death-rattle of a dying man. As we get in the sun what we once were, we see in the moon what our planet must come to unless it is either drawn into the sun, or meets in collision with some planet or wandering star. In the latter case the pace at which our earth is travelling—some twenty miles a second—would be changed into heat by which the earth itself would probably be dissolved into gas again. Otherwise the heat of our earth in the course of millions of years will go on decreasing; the polar caps will push their way from the north and south till they take over Europe and New Zealand, and make the regions of the equator the only habitable ones for the human race. These in their turn will get cold and our planet will rush on its way through space—the frozen carcase of a dead world.

Now let us examine two or three of the planets. In Mercury, which is the nearest to the globe, you get a small, bright world muffled in a robe of clouds. The heat of the sun is there ten times as great as we experience on the earth, and life, as we know it, would probably be impossible except at the poles. Mercury completes its year in a little over three months, so its seasons will last only about three weeks each. Growth of vegetables must be almost magical, and the air is so light that an elephant or hippopotamus would there

be as active as a cat or roe-deer is with us. Moonless Venus also has a thick vaporous atmosphere. Its shores would be washed by tides obeying the sun—it has no moon to influence them—and life would probably be confined to polar and temperate regions. It is, however, difficult to speak with certainty of this planet, as it rises and sets in such a fashion as to render its observation extremely difficult.

In Mars, with its two small moons, you get a miniature earth, in which you can get an idea of how our planet looks in the sky. Mars is a dappled green and reddish ball, with white spots at the two poles. The green patches represent the seas, the reddish patches represent the continents, which appear to be much more intermingled with small seas than our earth. Clouds constantly come over her surface, telling us of wind and rain, rivers and lakes. She is probably well adapted for life, such as we understand it, and is in some respects a sister globe to our own earth.

In Jupiter, which is the last one I shall deal with, you get an idea of what our earth was half way between the time when it was in a state of conflagration like the sun, and the era when it assumed its present condition. This is the largest of all the planets, and has four moons, and through a telescope you can see his disc streaked with enveloping clouds. It is very bright at the equator, paling through yellow and brown, and fine grey at the

South Pole of the planet Mars, shewing the ice extending there as in our Earth.

Relative Sizes of the Planet Jupiter and our Earth.

poles. In plain English, Jupiter has cooled down till a crust has formed over its surface. It is red hot in its centre, but the cooling process has gone on more rapidly at its extremities, where the grey colour shows less heat. It is still full of unquenched internal fires which will be giving rise to boiling seas, violent volcanoes, and terrible earthquakes. Life is improbable upon Jupiter, though it may exist on its moons.

The other planets we need not dwell upon. Saturn is probably in somewhat the same condition as Jupiter, though smaller, and of Uranus and Neptune very little is known, and unless heated by internal fires they are probably wrapped in Arctic cold. At Neptune, they only have one nine-hundredth part of the heat which we get from the sun.

You must now turn from the little corner of our solar system to the fixed stars. I dare say you are accustomed to look upon our sun as a very grand and noble star. What will you say then when you learn that our sun is only one of nearly sixty millions of suns scattered through space, some of them far larger than ours, and each probably with its own system of planets moving round it. Remember that our earth is about ninety-one millions of miles from the sun, and try if you can to picture the fact that the nearer of the fixed stars, *i.e.*, of the other suns, to us are more than 500,000 times as far from us as our

sun, and light which can reach us from our sun in a little over seven minutes would take nine years and a-half to reach us from them.

Altogether you can see six thousand stars or suns in heaven with the naked eye, and with the telescope you can pretty well multiply this by ten thousand, making it nearly 60,000,000 in all, some of them being so infinitely large, and infinitely far, that their light takes 100,000 years before it reaches us; that is to say, we should not see these stars for 100,000 years after their creation, and we should not miss them in the heavens for one hundred thousand years after they had been destroyed. Intermingled with these stars, you can sometimes see on a clear night nebulæ—*i. e.*, a kind of bright haze. Some of these hazes are simply clusters of stars at enormous distances, but some are masses of burning gas. How this is found out I will explain at our next reading, as we have had enough of science for the present.

Now the astronomer can tell you that he has known some stars fade into haze; and, on the other hand, some of the haze seems partly gaseous and partly solid. This theory, known as the theory of Laplace, is therefore—that the whole of our solar system was once a mass of burning gas, with a rapid rotary motion. The outer portions of this gradually becoming detached, but retaining their rotary motion, in the course of time cooled down sufficiently to become solid, forming the various planets. The

Various nebulæ resolved into groups of Suns by means of a powerful telescope.

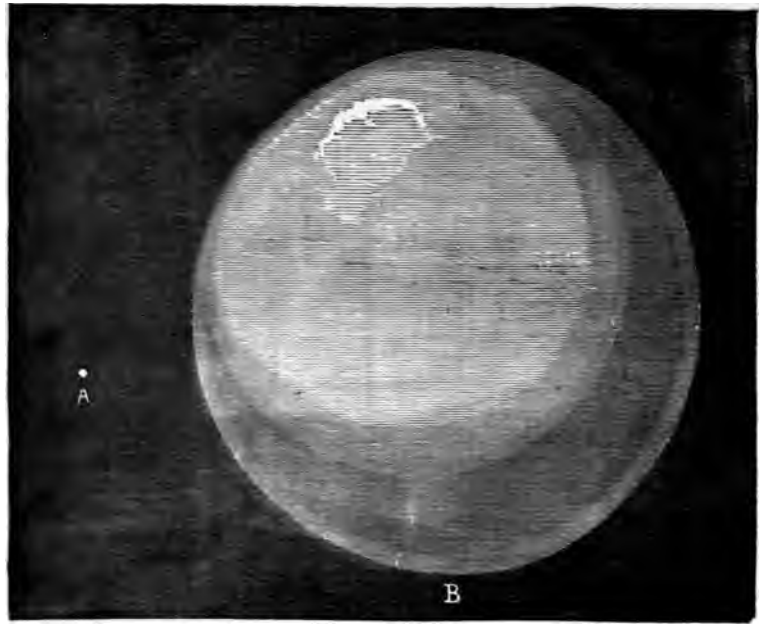
centre portion forming its nucleus was of course the last to retain its intense heat, or, in other words, as Paul expresses it, in the eleventh of Hebrews—"We understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear." Our sun itself, which was long thought to be stationary, is now known to be travelling through space at the rate of many millions of miles a year; and some of the fixed stars are also ascertained to be moving, although their enormous distances from us renders such movement almost imperceptible.

As matter in a gaseous state occupies about 1800 times more space than when solid, it will be observed that all the planets have enormously diminished in size by becoming solid. The extent to which our earth has been effected by this will be seen by the accompanying plate.

At our next meeting I will endeavour to explain this more fully, meanwhile let us now sum up and see at what we have arrived. We question science, and she tells us that the things which we see were made from invisible gases, that the whole universe was formed in this way, and that everything is composed of molecules, and molecules of atoms. If, however, we ask who made the atoms, and how these atoms got their rotary, or indeed any, motion, she must bow her head and tell us that these truths lie, as Tennyson calls it,

"Behind the veil."

She cannot tell us. Taking up revelation (or withdrawing the veil) we find that these atoms were formed in the beginning and set in motion by God. Do you think that you have lost anything by hearing of science this afternoon? When you think of the eternal Creator who made not only our little planet, but millions and millions of worlds with their light, and life, and change, all obeying his mandate, and fashioned according to his law—how sure must His word be—how terribly true the warning that the soul that sinneth shall die, or the promise of everlasting life to him that believeth. Science has but given us a glimpse of some of the wonderful works of the Great Creator, and as you bow your head in awe and wonder at his marvellous works, learn to appreciate more fully the love which leads such a God to care for each one of us. He is none the less your Father and Saviour, because you have learned more of his infinity and wisdom. May what we have read this afternoon draw us closer to Him, and while teaching us the folly of neglecting the living message he sends us, lead us to echo the prayer of the Psalmist— Create a new heart in me, O God, and renew a right spirit within me, for thy name's sake.



Comparative sizes of the Earth *(A)* in its present and *(B)* in its former gaseous condition. The latter being about 1800 times as large as the former.

III.

FROM CHAOS TO COSMOS.

And the earth was formless and empty, and darkness was on the aspect of the abyss.
And the Spirit of Elohim moved on surface of the waters (mayim).
And Elohim said, Light, be: and light was.
And Elohim saw the light that it was good; and Elohim separated the light from the darkness; and Elohim called the light day, and the darkness called he night.
And evening was and morning was—day one.

Gen. i. 2-5.

WHEN we read together the opening verse of Scripture, we considered why God should have dealt with such a subject as Creation at all and took a brief glance at what science had to say on our solar system and the universe. We saw then, that not only was our earth but a small part of the system to which we belong, but that our sun with all its attendant planets was but an infinitesimal corner of the universe. We learnt from Laplace, whose theory is almost universally adopted, that the whole universe was once a vast expanse of rarified gas, or rather matter in a much more rarified condition than any gas of which we have knowledge. This gaseous matter is supposed by some means to have obtained a rotary motion from east to west, thus acquiring (I deal here speci-

ally with that portion forming our solar system, although it is probably equally true of the whole) a shape like a watch or tray. Meanwhile it parted with its heat, and gradually shrank, the effect of such shrinking being at first to make what gaseous matter remained hotter, though the total volume of heat was less.

As this process went on, flakes or rings of matter broke off the parent mass, all of which preserved their rotary motion, and were prevented from flying off into space by the law of gravitation, which attracted them towards the centre round which they revolved. Larger masses broke off at first, smaller ones afterwards, for, as you see on the chart, the larger planets are furthest from the sun, and the smaller ones nearest. Sometimes the process was repeated, small rings or portions breaking off the truants themselves, and ultimately becoming satellites to them, such, for instance, as the moons of Jupiter, Saturn, or the Earth. In time the gaseous matter of some of the detached portions cooled, till a crust formed on the surface, thus changing them from masses of vapour into planets or their satellites.

Of course, the centre portion would be the largest and hottest, and the last to take definite shape, and we know, both as a matter of fact and from Genesis, that it was not till the fourth day that our sun assumed its present condition. The smaller the globe or mass of vapour the sooner

The Earth in a gaseous condition

it would cool down into a solid;—for instance, our moon, which has run her course; our earth which is larger, being still in its golden prime; while Jupiter, infinitely larger than either, has, it is true, cooled down into a partially solid condition, but is not yet habitable. There are one or two difficulties in the way of this theory, mainly the fact of the moons of Uranus and Neptune moving in a direction contrary to the rest of the system, but the evidence in its favour is so enormous that its truth is not doubted.

As so much, however, depends on the luminous haze or nebula to which Herschel and Laplace trace all matter, it is only right that we should ascertain how the constitution of these hazes or nebulæ has been arrived at. There are many such visible, a few to the naked eye, but most of them only by the use of the telescope. Some are, as I have told you, merely groups of suns lying at fabulous distances both from us and from each other, but so placed in space as to look near each from this earth. For instance, if there were two stars exactly in the same direction from this earth, one of which was 100 million miles from us, and the other 200 million miles from us, they would look from this earth close together, though really further from each other than the sun from this planet. Imagine many thousand, or even million suns so placed, and you have got the component parts of some of the apparent nebulæ. Powerful

telescopes have succeeded in resolving them into separate stars, and for a long time it was thought that all nebulæ were to be so explained.

It has now to be explained how this belief was upset and some of the nebulæ proved to be in a gaseous state. The discovery, like most such discoveries, was simple enough—it was merely reading what had been written in colours of the rainbow on the wall since the glorious beauty of the sun had first shone on this globe. You must all have noticed that when the sunlight passes through the triangular pieces of cut glass ornamenting many chandeliers, it seems to get changed into a light of many colours, and to throw a reflection in orange, green, and blue on the floor or wall.

For many a long year had men gazed on this riddle, till at last, in 1859, a German astronomer, Kirchhoff by name, determined to decipher its meaning. Carefully noting the colours into which the sunlight was divided by being passed through a prism, he commenced a series of experiments in his laboratory, burning in his crucible solids and liquids, gases and metals, and testing the light produced by their combustion.

By these and similar means he learned that solid matters in a state of fusion produced continuous ribbons of colour, whereas gases in a state of fusion produced isolated bars of colour, while burning solids enveloped in gas gave also distinctive results. Following out these experiments, he was first able

to reproduce in his laboratory the colours composing the white sunlight, thus learning some of the chief metals and other substances in the sun, and was ultimately also able to state with confidence, from the light given by the various nebulæ, which of them were groups of suns and which were in a gaseous state. About 60 nebulæ were thus examined, and of these 19 yielded spectra which proved them to be in a gaseous condition, while the remainder gave evidence of their being composed of separate stars, at incalculable distances but in a more or less solid condition.

As we shall not again have to recur, except incidentally, to this subject, it may be well before we bid it farewell to try to gain some faint conception, so far as figures will enable us to do so, of the vast extent of the universe which the opening verses of the Bible claim as our Father's handiwork. Let us commence with our sun. It gives you but a vague idea to be told that the sun is more than a million times as large as our earth, or that it is so many hundred thousand miles in diameter. But imagine for a moment that our earth were placed in the centre of the sun, with its moon revolving round it as now at a distance of 240,000 miles, not only would the sun afford ample room for the circuit of the moon round our earth, but it would extend 150,000 miles beyond its course!

Or, take the distance of our earth from the sun, and try to realise what 91,000,000 miles mean. A

cannon ball travelling at the rate of 500 yards a second would take 10 years to accomplish the distance, and yet the nearer of the fixed stars are half a million times as far. Taking the 91,000,000 miles as one unit, here are the distances of a few of the nearer stars or suns not belonging to our planetary system—

Name of Star.	Times as far from our earth as we are from Sun.	Time light would take to reach us travelling at over 200,000 miles a second.
α of the Swan, ...	551,000	... 9½ years.
α of the Lyre, ...	1,330,700	... 21 ,,
α of the Dog, ...	1,375,000	... 22 ,,
α of the Great Bear, ...	1,550,800	... 25 ,,
The Polar Star, ...	3,678,000	... 50 ,,

While, as we saw last Sunday, some of the stars of the 14th magnitude* are so inconceivably far from us that their light takes 100,000 years to reach us. Nor are even these stars the farthest, some of the nebulæ are still more remote—one astronomer venturing to calculate that from one of the nebulæ light would take 5,000,000 years to reach our planet, while even then, in some directions, a faint light in the far distance proves that the power of

* The "magnitude" of a star is determined not by its actual, but by its apparent size—in other words, by its nearness to our earth. Thus many stars of the 14th magnitude are infinitely larger than those of the first magnitude, but they appear less bright to us because of their infinite distances from us.

the telescope has failed, but that the infinity of the universe is yet unprobed.

I have thought it well thus to retrace our steps over the theory, as on your proper apprehension of it depends your understanding what we are to consider to-day.

We start then from the first verse with the knowledge that God in the beginning created matter, and that science first knows of this matter in a rarified condition, and having motion, heat, and light. The first question we shall have to consider, therefore, is the character and extent of this motion and light, and then we shall further have to enquire as to their origin. Here science steps in and informs us that almost every known force of nature springs from some one mysterious power which we call "energy." This energy can be changed into light, electricity, speed, heat, and a hundred other forms, and as far as we know it pervades the entire universe. Let us think for a moment what this energy means in the planet on which we live. In the first place, you must remember that our earth revolves on its axis, that is, spins round on its own centre at the rate of about 1000 miles an hour, the circumference of our earth being 24,000 miles, and a complete circle being described every twenty-four hours. In addition to this, you must bear in mind the enormous display of power necessary to cause our tides, currents, and atmospheric changes. It has been estimated that the power annually

put forth by the sun in forming the clouds, is greater than could be exerted by the whole human race in 200,000 years. Not only is this tremendous force at work on the earth's surface, but the entire planet travels in an enormous circle around the sun, and is at the present moment rushing through space at an almost inconceivable rate. We look upon an express train travelling at sixty miles an hour as a great exhibition of speed, but our planet travels not sixty miles an hour, nor even sixty miles a minute, but about twenty miles every second, or the stupendous, almost terrible pace of 1200 miles a minute.

When, in addition to the energy shown in the motion of our earth, we remember that still greater energy is manifest in the motions of many of the planets, that our sun itself is travelling at an enormous speed on some unknown course through space, and that, as far as we can tell, all the suns, or stars as we call them, which are sufficiently near for us to observe, are equally full of force and energy,—when, I say, we know all this, science and religion must alike ask whence came this incalculable display of power? At this point revelation assists us, and we are told in the second and third verses of the chapter we have just read, who it was that gave energy to the matter which He had formed, and directed its force to work out His own will.

Before, however, we critically consider these verses, I want to point out one strong argument for

the existence of a God which, I think, the thoughts I have just suggested to you will bring forcibly home to your mind. It is very evident that mighty and enormous as the force or energy stored in the universe is at present, it must in the long run exhaust itself like a clock running down. However distant the time may be, yet a period will arrive when Nature, if left to itself, will come to a dead stop. If you take a ball of white hot iron out of a furnace, no matter how hot it is, it will ultimately, if placed in the open air, part with its heat by radiation, and become the same temperature as the surrounding atmosphere. When this has taken place the force or energy stored in it will have gone. Again, if you put a stone on the top of a wall, there is a certain amount of stored energy in it, which will be converted into heat, developed by collision with the earth if allowed to fall; but its energy will then be spent.

Now, this must happen to everything, to the universe amongst others, if sufficient time be only allowed. Assuming, therefore, for a moment, that matter was made by chance, and got its present energy by accident, ultimately the sun must lose its heat, and, like our moon, turn into a ball of ice,—all the other suns, of which we are cognisant, must do the same, and then eternal death would reign supreme where life and light and heat had been before; and all that would remain of the fair creation on which we

can now gaze, would be the useless carcases of dead worlds! Can you imagine that such will be the end of Nature, nay, of the soul of man, for as surely as you put God out of his own Creation, so must Nature some day, failing to renew her strength, cease to be, and succumb to the universal reign of ruin, darkness, and death. A terrible creed, indeed, would this be. God save our souls from yielding to such despair!

Now, turn to your Bibles. You will see if you refer to the translation which I read you, that the earth was formless and void, and darkness was on the aspect of abyss, and the Spirit of God moved on the face of the waters. I want you to notice here that whereas science can take you back to a time when everything we now see existed only as a faintly luminous haze in violent motion, the Bible takes a step further, and tells us that before the motion or the light appeared, darkness was on the aspect of abyss. Now we know that light is the result of motion, and the Bible simply shows us that before God gave to matter the energy which now works out and sustains creation, all was dark, void and silent, throughout the immensity of space. To the matter which had already been created, God gave motion, and the result of that motion was light.

Most beautifully has Genesis described it. God said, Light be, and light was; and God saw the light that it was good—good, that is to say, to

carry out His gracious purpose—good as one result of the stored-up energy which was one day to shape this planet out of the shapeless and void darkness, and to fill it with all the beauties and glories with which nature is now surrounded. Yes, in that same stored-up energy was the power that painted the violet, and gave light to the sun, and provided wholesome atmosphere for man to breathe; and so of the motion which God created on this first day, we read that it was "good."

The next step was to call the light "day." I believe the root of the word used has the same meaning in the Hebrew as that for motion, while the word used for darkness is kindred to that for deviation; henceforth the dark lifeless void was deviation from God's plan, and motion, with its attendant forces, were his order and rule. Will you notice, that after the first day, you do not read of "darkness" as the characteristic of Creation. The progress is always from evening to morning, not from darkness to light, as on the first day.

Perhaps you may be somewhat puzzled by the statement, "the Spirit of God moved on the face of the *waters*." The word used for waters (mayim) will represent any fluid. You will observe it is used for the clouds in the sixth and seventh verses, and the word employed for heavens (shamayim) is formed from it. Apparently here, it is used for the thin vapoury condition of matter before God created motion and light. The Bible account of the

first creative æon, therefore, furnishes us with the origin of that condition of the universe which had been partly surmised by science. Science told us it could trace back everything to hot gaseous masses in a state of intense vibration. The Bible tells us not only the origin of matter, but how it became hot, and whence it got its motion.

We must now proceed to the events of the second day.

And Elohim said let there be an expanse (raquia) between the waters (mayim), and let it be a separation between waters and waters (mayim). And Elohim made the expanse, and separated the waters under the expanse from the waters (mayim) above the expanse; and it was so. And Elohim called the expanse Heavens (shamayim). And evening was and morning was a second day.

The chief act of this day was, according to the Bible, the formation of an expanse in the midst of the waters. Those of you who have reference Bibles will see in the margin that the Hebrew for the word firmament, means "expanse" or "expansion."

Now what can nature teach us on this subject? It tells us that as our earth began to pass out of the condition when it was a miniature sun, and grew, in fact, to be somewhat like Jupiter, a crust would gradually form over its surface, when the cooling process would continue much more rapidly, for, as we have seen, under certain conditions, gas grows hotter by contraction, whereas solids grow colder. At this time our planet would be enveloped in vast clouds of poison-

ous gases, steam, vapour, ashes, and other impurities, while its newly formed surface would be swept by volcanic explosions, terrific storms, and furious blasts of scorching air. Water boils with us at 212° Fahr., though with the heavier atmosphere then existing, it would probably have required a much higher temperature to make it *boil;* but, at anyrate, until the crust of the earth fell below 212° Fahr., the agencies, which form the expanse, could scarcely have commenced.

As, however, the crust of the earth cooled down, the water, previously held in suspension in the state of steam, or gas, would commence to form the ocean, while the particles of moisture drawn upwards, as at present, would form clouds, leaving a purer belt of atmosphere between them, though probably too much charged with carbolic acid gas to allow of life. During this period you must remember the sun would only exist as an immensely extensive cloud of luminous gas, vastly larger, but probably less powerful than in its present condition, while all over the surface of the earth the universal seas, for there was no dry land, would be depositing the earlier rocks. The thin crust which had first formed over the globe, strengthened by the rocks gradually formed at the bottom of the sea, would be crumpled and twisted into a thousand shapes by the constant outbreaks of internal fires, followed by the shrinking of the cooling mass. During this period the granite, basalt, and other eruptive rocks,

were formed, and on them the earlier metamorphic rocks were deposited, which bear ineffaceable witness of the state of the globe at that time, by being wholly destitute of any traces of life.

As, therefore, God's act on the first day had been to give motion to matter, which had resulted in light, electricity, and the energy which rendered the formation discovered by Laplace possible; so, during the second day, the particular mass of matter which formed our globe, cooled down, sufficiently to allow the crust to form over the white hot nucleus, and the crust itself parted with its heat to a sufficient extent to allow the gases on its surface to assume the form of water, and deposit the earlier rocks.

We will now turn to the third day, which is the last one we shall consider this afternoon.

And Elohim said, Let the waters under the heavens be gathered into one place, and let the dry land appear. And it was so.

And Elohim called the dry land earth, and the gathering of the waters called He seas; and Elohim saw that it was good.

And Elohim said, Let the earth bring forth herbage, the herb bearing seed, and the fruit tree yielding fruit, whose seed is in it, after its kind, on the earth;

And it was so. And the earth brought forth herbage, the herb yielding seed, and the tree bearing fruit whose seed is in it after its kind, and Elohim saw that it was good.

And evening was and morning was a third day.

If you have understood the process I have been attempting to make plain to you, the appearance of dry land will present no difficulty whatever to you.

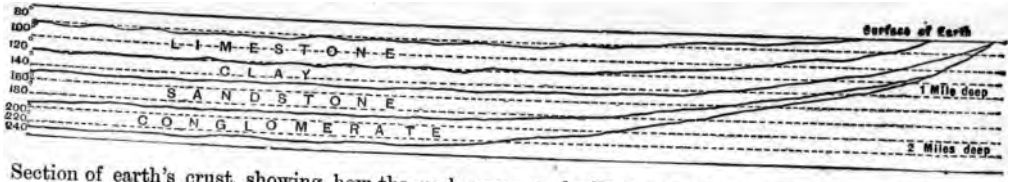
Inasmuch as during the second day, geology teaches us that a huge universal ocean covered our globe, so, during the third day, the shrinkage of the crust, aided by volcanic action, was sufficient to force up some portions into dry land and hills, while other portions were correspondingly depressed, into which the water naturally found its way. Thus, by the ordinary laws of radiation and contraction, the waters were confined to certain areas of the globe, and portions of the crust of the earth, became sufficiently elevated to form continents and islands. The more important part of the biblical account of this day, however, is that which asserts that on it vegetable life first commenced. Before we can discuss this, let me explain for a moment the kind of rocks which were deposited during the third day. You are, of course, aware that all rocks, except those of volcanic origin, were either formed from ooze or sand slowly deposited by water (as, for instance, the numerous descriptions of sand-stones), or else owe their origin partly to this, and partly to animal life, as for instance, lime-stones and chalk.

The earliest of all, however, bear unmistakeable marks of fire, and are called azoic or lifeless, as the condition of the globe when they were made rendered life impossible. At the top of these came others, which, like their predecessors were so crumpled, steamed, and roasted out of their original texture as to be called "metamorphic," or changed

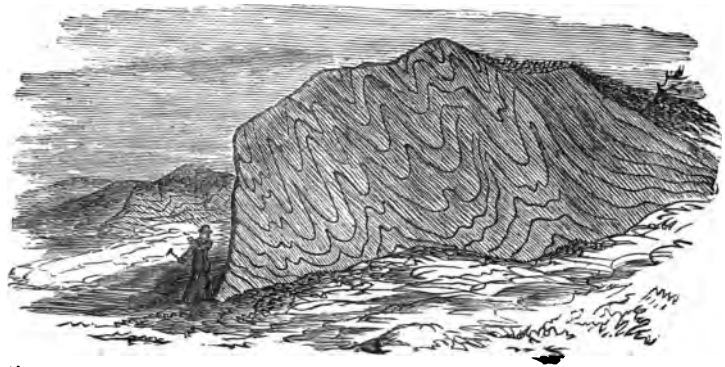
rocks, it being almost impossible to distinguish what they originally were or what they contained.

No marks of life are found in the lower of these metamorphic rocks; indeed, had there been any, the scorching they have sustained would forbid our finding traces of it. Immediately above these we find clay slates, baked by heat and hardened by pressure, and showing the gradual abatement of that terrible struggle between the thickening surface of the earth and the internal fires. On these, again, we find limestone formed during a period called by geologists the Laurentian, and it is in these limestone rocks of the Laurentian period that the geologist finds his first signs of vegetable or animal life.

Of the remains of vegetable life, all we can discover has been changed by heat into a substance called graphite, but the heat has been so tremendous as to entirely prevent any attempt to settle the shape or form of the plant from being successful, though it was certainly marine. You must remember, however, in fairness—for we must not shirk any difficulties real or apparent—that in these same Laurentian rocks we not only find remains of vegetable life, but Professor Dawson, of Canada, has shown that they contain records also of the earliest known kind of animal life, which he has named Eozöon Canadense. This Eozöon was a kind of animal somewhat like those called foraminifera by geologists, that is to say they were small jelly-



Section of earth's crust, showing how the rocks were gradually deposited. It was in some of the conglomerate series that the first remains of graphite and eozoon were found.



Section showing how the strata of rocks have been twisted and contorted by heat, shrinkage, and other causes.

like animals which had the power of forming over themselves, from the lime in the water which surrounded them, shells pierced with innumerable small holes, through which they put out feelers with which they gathered nourishment, or ascertained the approach of danger.

You would very naturally object that the presence of any animal life whatever in the rocks which contain the first vegetable life, at first seems hardly reconcileable with the statement in Genesis. Professor Dawson and Professor Dana, the well-known American geologists, get over the difficulty by asserting that although comparatively little graphite remains in the Laurentian rocks, the extraordinary heat and crumpling to which they have been subjected quite account for this, and have necessarily destroyed most of the records which would otherwise have existed of marine vegetable life. They hold that the graphite represents the vegetable life which existed during the third day, and that the Eozöon and other animal life was not created till the fifth day. Their arguments may be summarised as follows:—

1. The existence of graphite, this substance being known to be a result of the alteration of the carbon of plants.
2. The fact that the cooling earth would have necessarily been fitted for vegetable life long ages before animals could have existed, nature having everywhere followed the law of supply-

ing the earth with the highest form of life the conditions allowed.

3. The fact that vegetation purified the air by ridding it of undue quantities of carbonic acid, and thus fitting the atmosphere for animal life, suggests that it performed a similar service to the waters before the *ocean* could have supported life.
4. Vegetation, being directly or indirectly the food of all animals, *must have* existed before them.

On the other hand, those who are satisfied to consider the geological narrative in Genesis, as consisting of mere broad outlines, are satisfied with the fact that trees, grasses, and in fact all vegetable existence flourished and came to their prime long before animal life emerged from its earlier stages. Whichever view you take it is undeniable that the age of plants came before the age of fishes, or the age of birds, reptiles, or mammals, and this to my mind is all that the verses are meant to teach us. It is not disputed by any, that while the luxuriant vegetation of the so-called carboniferous or coal period covered the surface of the earth, the lower forms of life were existing in the Laurentian Seas, and that no trace either of bird or mammal had then made its appearance.

In either case, science and Scripture are perfectly reconcileable. To those who think that the third day was *confined* to vegetable life, it is

open to say that the graphite is all that is left us of what once was abundant marine vegetation. While others, who look for nothing more than an observance of the proper order in the biblical narrative, are content to know that, by the unanimous consent of all geologists, the earth teemed with luxuriant and dense forests long ere the higher kinds even of marine life were developed. If you will bear in mind the plain matter of fact that an animal's food *must* be created before the animal itself, and that all animals are ultimately dependent on vegetation to sustain their life, the Bible statement that plants were made before animals will be seen to be necessarily true. A common-sense reason such as this is worth a basketful of arguments.

As it is not my wish to spin these lectures out to an undue length, I will take now a brief glance at the progress of vegetation, leaving the more important subject of animal life for next Sunday.

Marine plants were followed by land flora, the hot steamy condition of the earth, and the same poisonous condition of the atmosphere overcharged with carbonic gas being specially suitable to their development. Through the periods, therefore, represented by the fourth and the earlier portion of the fifth days, the growth of vegetation was rapid and universal. The land seems to have been flat and extensive, and the climate warm, steamy, and equable throughout the year and all over the

earth—a result due perhaps to the internal heat of the planet and the more diffused body of the sun during the earlier portion of the period we are considering.

The whole surface of the earth, even that now locked in eternal ice, was covered with luxuriant forests of flowerless trees, with huge club mosses, tree ferns, and trees with curious scaly or fluted stems, in some respects not unlike some of our tropical palms. It was during this time that our coal seams were deposited, and so it is called the "carboniferous" period. Meanwhile the forms of animal life were very low, indeed there is no trace of a single four-footed animal of any existing species till long after the carboniferous forests had passed away. While, therefore, Moses was perfectly correct in giving long precedence to vegetable over animal life, as a matter of fact God in his wisdom was slowly preparing, as Darwin has taught largely by evolution, that animal life which was to take possession of the earth after the altered temperature and changed climate caused the vegetable world to decay.

Taking as we may the carboniferous period as possibly commencing at the end of the third, but at any rate extending over the fourth and probably the commencement of the fifth creative æon, we find the rocks contain traces of the following amongst other forms of life. First of all seaweeds, then sponges, small mud worms, shell

fish, especially suited for marshy, muddy land, and all of a low type; then corals, more shell fish, sea-mats, and then, after a long period, land flora for the first time, mosses, ferns, tree ferns, such as we now see in the West Indies, and fish, like sturgeon, with horny armour. These were followed by palms and the enormous forests composing the vegetation of the carboniferous period.

The surface of the earth was apparently rarely elevated much above the water; in fact, we may describe the earth during this coal period, *i.e.*, during the fourth and fifth days, as being characterised by shallow seas and slightly elevated continents or islands, the dry land being everywhere covered with huge dense forests, often standing in marshes and swamps, through the tangled shadows of which, in addition to marine animals, scorpions, prawns, shrimps, spiders, and similar creatures sought their prey. I need not tell you that coal is composed of spore dust, leaves, and fallen remains of huge forests. Think, if you can, of the time it would take for the forests to deposit a coal measure twenty feet deep (that is as high as this hall), and then when you remember that in Wales you get scores of these measures one above the other, with layers of clay and rock between, you may form some idea of the enormous spaces of time which were required for the so-called carboniferous period.

The land seems to have been undergoing constant

risings and subsidences during this period. One coal seam marks an epoch when the land sunk under the water, then over the rotten remains of the huge forests which had been existing for centuries the sea would slowly deposit ooze and mud to be formed into rock. As the centuries rolled by, gradually the land would again rise out of the water, and the surface of the rocks would be worn away and crumbled, till sufficient vegetable mould was formed for the sustenance of fresh forests. These forests in their turn would rot and decay until the materials of another coal measure were deposited, and then once more the land would slowly sink under the surface of the water, and fresh deposits be placed on the buried fuel. Imagine this happening century after century, till not one or two but twenty coal beds were deposited one on the top of another, and then estimate, if you can, the hundreds of thousands of years which were required during the long ages of this æon ere the atmosphere was fit for the support of man, or the earth ready for habitation.

Yet through all this period God was silently working towards one distinct end—purifying the air by means of these gigantic forests, each tree stealing away some of the poison left by the previous condition of the earth, and changing it into something which in His good time would be useful and beneficial to man. Thus for the present we must leave the earth, with its whole surface from

l-mine at St. Etienne in France, showing how some of the trees of the Carboniferous Period have been preserved almost entire.

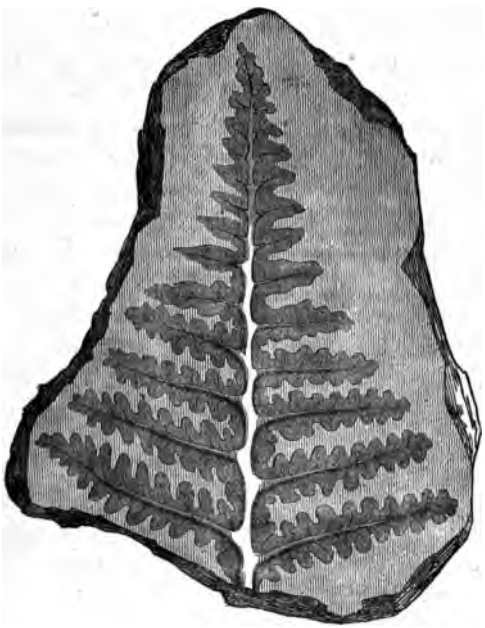
the North Pole to the Southern Cross, covered with shallow seas and dense masses of tropical vegetation, its air being gradually purified by means of vegetable life, and the lower forms of existence swarming in the ooze of the baleful swamps, until a higher kind of life had been evolved ready to step into its place on the passing away of the age of plants. You will observe I have not touched on the origin of life—this I reserve for our next reading. Meanwhile let us see what practical lessons we can get from what we have read. You will have noticed that all through the record, whether of geology or Scripture, the guiding hand of a Creator has been ever apparent, working through certain fixed and wise laws, which in the end disclose purposes at first hidden.

Slowly, but exceeding surely, has the dark, void, and inert chaos, been endowed with motion and light, till an earth was produced capable of sustaining life, and nature, while apparently working irresponsibly, has been running in the groove marked out for it from the beginning. Does not this thought of unchangeable and unchanging law bring a solemn question home in your heart, as to whether your life is in accordance with that law, or against it. How hopeless it would have been for you or for me to have attempted to have changed the conditions under which the continents were slowly rising from the primeval oceans, and the commencements of life slowly developing them-

selves! And no less hopeless will it be for us in the future to look for a life in another world, other than that for which we have been preparing ourselves in this!

You will see God interfered with no visible miracle. He started certain laws, and let these laws work out their natural results, and do you think He will act differently in dealing with man, than He has acted when preparing his habitation? Believe me, it is not only true that God will punish sin, but that sin avenges itself. "The soul that sinneth, it shall die," is not so much a story of God's judgment, as a truth, a necessity of God's law. We are forbidden to sin because sin is necessarily evil for us, and if we *will* have it, then we shall find that in seeking our own way, and rejecting the law which God has laid down for us, we have wrought out not our own salvation, but our own ruin.

Think, then, as you look back at this record this afternoon, and read how God said, and it was done; think how you will feel when, with your life behind you, and eternity in front, you go to meet one whose word you have neglected, and whose love you have spurned. Woe be to that man who dares to put his impotence against the divine majesty of the law of God; to violate it is peril, to defy it is ruin,—is hell. Depend upon it, every evil deed, every idle word, every secret sin, will come home to us at last,



Fossil Fern belonging to the Carboniferous Period.

and will have to be paid for to the uttermost farthing. Retribution seems far off, as you see sin go unpunished, and apparently forgotten; but the thunders of Sinai do but slumber for the moment, and the law remains deep cut in tables more durable than stone. "He that being often reproved, hardeneth his neck, shall suddenly be destroyed, and that without remedy."

Do not be misled by the vain hope that sin is, after all, not so sinful,—that God is merciful, and will not take a strict account. "Be not deceived, God is not mocked: that which a man soweth that shall he reap."

I have no faith in these so-called death-bed repentances. Your own common-sense will tell you that if you have sought your happiness in sin in this world, you can by no means be happy with a sinless life in the next. Nay, more, I believe that the very same condition which would be heaven to one man, would be the deepest hell to another. Take the case of two men approaching His presence before whom the angels veil their faces—one, who has known his highest joy in striving to benefit others, is given as his employment in the next world, acts of mercy, words of reconciliation, messages of peace. How glad he would be as he found he could serve in heaven that Saviour whom he had loved on earth. But side by side with him stands the drunkard, the liar, or the sensualist, and he, too, is given a com-

mission and is bidden to find his heaven in the divine joy of helping others. I ask you, would not such service be a very hell to him? Would he not be longing after those sins which he had left on earth? would he not, in fact, find the unalterable law of God that that which a man soweth, that which a man makes himself, that also shall he be, can no more be broken in the working out of his daily life, than could the mandates of the Eternal God be disregarded by the forces of nature which he called into play?

Let us then not despise Him that speaketh, and as we *must* have to deal with him in days to come, let us this afternoon find his fullest and most beauteous revelation in the life and death of our blessed Redeemer, and then we can say of the things of this world, as of the ages past, and of those which are to come, "Lo! he hath done all things well,"—"All things work together for good to those that love him."

IV.

FOOTPRINTS OF THE CREATOR.

And Elohim said, let there be luminaries in the expanse of heaven, to divide the day from the night; and let them be for signs and for seasons, and for days and for years. And let them be for luminaries in the expanse of heaven to give light on the earth: and it was so.

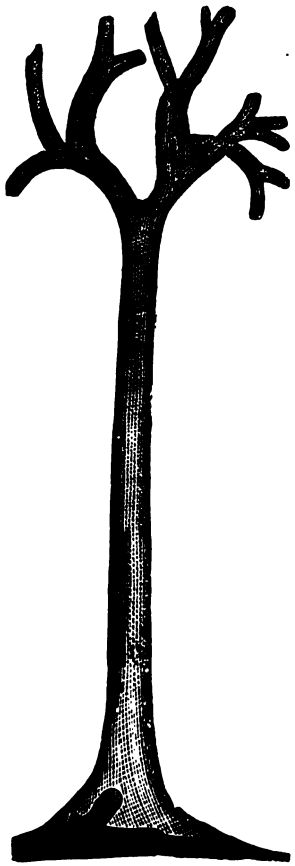
And Elohim made two great luminaries, the greater luminary to preside over the day, the lesser luminary to preside over the night. He made the stars also. And Elohim placed them in the expanse of heaven to give light on the earth, and to preside over the day and over the night, and to separate the light from the darkness: and Elohim saw that it was good. And evening was, and morning was, a fourth day.

Gen. i. 14-19.

OUR last Bible reading brought us to the end of the third day of creation, though it was necessary for us to extend our view partially to the fifth day, and refer to the living creatures which existed during a portion of the carboniferous period. During the past two lectures we have traced this earth from the partially luminous haze where the Laplace theory first finds it, through the days when it shone forth as a little sun in heaven, then through the gradual hardening of the crust which formed on its outer surface, confining its fires within, to the time when the cooling process had sufficiently gone on to allow of the first appearance of life.

You will remember that when the crust first formed, our planet bore some resemblance to the present condition of Jupiter—hot at the equator, cooler towards the poles, and covered as Jupiter now is with dense masses of poisonous gases, containing the constituent parts of many of the solids and liquids now present on the earth. This was followed by the reduction of the temperature of the earth to such a point as to allow of the condensation of much of the vaporous envelope surrounding it, one result of which was the formation of the sea. This first ocean seems to have covered the entire surface of the globe, while other portions of the vapour formed clouds overhead, the air thus gradually becoming purer, though still too charged with carbon to be fit for human lungs.

We next saw the earliest rocks being deposited at the bottom of this universal ocean, the rocks, themselves, being constantly scorched and twisted out of their original shape by the bursting out of the internal fires they were yet unable to restrain. Meanwhile these constant upheavals, coupled with the inequalities caused by contraction, rendered the surface of the earth depressed in some places and elevated in others, the former representing the seas, the latter the dry land. We learnt that these earlier rocks were called azoic, or lifeless, and that it was in the next series of rocks, known as the metamorphic, or changed rocks, where we came across the first appearances of life. These



Lepidodendron; a kind of tree that flourished in the Carboniferous Period.

metamorphic rocks showed us the remnants both of animal and vegetable existence, the former being of the lowest possible type and known as the eozöon, the latter too changed by fire and heat to be recognisable, and having assumed the shape of graphite. Our last step was to trace this animal and vegetable life to further development, dwelling more particularly on the latter, which, you remember, reached its prime long before the former, so that the whole surface of the earth not covered by sea was one mass of flourishing forests, even those regions now wrapped in eternal ice, being then covered with vegetation, at present only existing in tropical climates.

It was probably during the commencement of this period that the events mentioned in the fourth day took place. We are told that on that day God said, "Let there be lights in the firmament of the heaven to divide the day from the night, and let them be for signs and for seasons, and for days and years. . . . And God made two great lights; the greater light to rule the day, and the lesser light to rule the night; he made the stars also." Here we find the creation of the sun and moon as we now see them, occurring in the centre, and not, as we should have expected, at the commencement of creation. Surely no merely human reason would have arrived at this conclusion in those days. They had not then the science of the 19th century to guide them, and it must have

seemed an extraordinary statement to the Hebrews that light was made so long before the sun. If, however, we turn from Revelation to Science, we find this to be a necessary corollary of Laplace's theory. It is, of course, self-evident that the nebulæ gradually shrinking, and, as we saw was the case with gas, increasing in heat as it shrank, the last portion to assume definite shape would be the centre, and astronomers of that school expressly stipulate that this was the case. Infidelity has, indeed, been obliged to change its tone since it wrote that the Mosaic narrative "would still be correct enough in great principles . . . were it not for one unlucky blunder"—the blunder being the creation of light before the sun. The blunder is plain enough; but who made it—Moses* or his critic?

Some time, then, between the existence of the early vegetable life, which is now found only as graphite, and the full development of the carboniferous era, the central and largest portions of the

* I have all through, for convenience sake, spoken of Moses as the author of Genesis, though, of course, we have no proof of it beyond mere tradition. Probably Moses merely collected and arranged the records which had come down to his time from those of the earlier patriarchs. These records, verbal at first, would most likely have been committed to writing on clay tablets in Ur of the Chaldees, and thus brought by Abraham to Canaan, and thence by Jacob to Egypt.

nebula finally assumed about that shape and place in the heavens which it now occupies, and as the moon borrows its light from the sun, it was, of course, dependent on the larger luminary before it could perform the duties now ascribed to it.

As regards the short sentence about the stars, I think you may take either one of two interpretations. We have seen that the fifty or sixty million of fixed stars are really suns, and if the process of Creation was going on all over the universe simultaneously, their formation into their present shape might have taken place somewhere about the same period as this fourth æon; or, on the other hand, we may deem the sentence as a kind of parenthesis put in by the sacred writer, claiming God as the Creator of the stars, as of the sun. I should like you to notice incidentally how the Bible always speaks of the stars as innumerable. Where did Moses get this knowledge? as only from 5000 to 6000 are visible to the naked eye in both hemispheres, and never can more than 1000 be seen at the same time. The ancient heathen writers used to consider the latter to be their number; but now, with modern telescopes, we find Moses was after all correct—that the stars, instead of being limited to 1000, are as the "sand on the sea shore for multitude."

This fourth day gives you another reason, should you need one, for holding that Moses could not possibly have meant the days of creation to have been

six ordinary days of twenty-four hours each. You all know that day and night are caused by the earth spinning round on its axis once in twenty-four hours, the portion of the earth facing the sun enjoying daylight, while the portion of the earth looking in the other direction is wrapped in night. Now it is wholly impossible that you could have had day and night before there was a sun, or when the earth was partly luminous, so that if the Creative days are held to be literal ones, what becomes of the first three days during a portion of which there was no sun in its present condition to make either day or night, and the earth was itself luminous, making night impossible. That this was evidently in the inspired writer's mind we gather from the fact that one of the special missions of the sun was to *divide* the day from the night.

It has been suggested by some of you in conversation that this system of calling days long periods, looks rather like an attempt to get out of a difficulty. Well, if the difficulty had been caused by previous ignorance, I do not know that we need be ashamed of trying to get out of it by admitting that we had been wrong; but in this case no such excuse is necessary. The term "day" was held by many Hebrew scholars, centuries ago, to represent periods of time. Josephus, a contemporary of our Saviour's time, held the days of Creation to be long periods, and with him agreed many learned men,—Philo of Alexandria among the number. Of Christian

writers, the very earliest we have, Irenæus, who lived about three hundred years after Christ, held the same opinion, as also did Origen, St. Augustine, Bede, Albertus Magnus, Thomas Aquinas, and many other of the most famous writers, both Protestant and Roman Catholic, who flourished long before the first whispers of modern astronomical knowledge had reached the Church.

We need not spend more time over the fourth day. I think you all understand how it was that some faint, though constantly increasing light, was necessarily given by the nebulous haze, long before it took the shape of the sun; but that the full beauty and glory of that splendid luminary was not seen till long after some of the lesser planets had begun to assume their present forms.

As, however, we remember the immense period which has passed since the events narrated of this fourth creative day took place, during which time the sun has been pouring out incalculable quantities of light and heat, the question naturally arises, Whence does the sun get its fuel? Two answers have been made to this question, which we will consider in detail. It is known that round the sun circulates an endless stream of meteors, and other similar bodies, which become visible to us during an eclipse, and it has been suggested that the sun provides itself with fuel by drawing some of these, or even some of the smaller planets, into itself.

This idea, however, has been pretty well given up on account of the inconceivable mass of matter which would be required for the purpose. You will understand that any heavenly body drawn into the sun would have its whole substance changed into heat by the tremendous force of the collision. It is calculated that our earth, if drawn into the sun, would generate sufficient heat to last about 100 years.

The other and more generally accepted theory is, that the sun loses by contraction what it gives out in heat. You have already seen that one of the laws of burning gas is that, up to a certain point, the more it contracts the hotter it gets, and it has been estimated that the sun would lose about 220 feet of its diameter every year, that is to say, it would have to contract to that extent to make up for the heat which it gives out. This would give a contraction of about a mile in twenty-five years, or four miles in a century, so that in five millions of years the sun would lose half its present diameter. From this truth astronomers gather that it is improbable that the sun can continue to support life on this globe for more than about ten million years at the very outside, as by that time it will have cooled down sufficiently for the first crust to have formed on its surface, and for it to commence a state of existence somewhat similar to that in which Jupiter now is.

Of that far distant future it is idle to speculate,

but we know that our sun is moving towards a part of the heavens where the constellation or group of stars called the Pleiades are now situated, and it is, of course, within the bounds of possibility that the sun may ultimately fall under the attraction of some mightier star which may give it light and heat, as it goes through the stages preparatory to its becoming a habitable globe as our earth is now. This is, as I have said, mere speculation, and many an age must run its course, and this earth itself must grow cold and stark, or be dissolved by fervent heat from collision with some other star, ere such a possibility can arise.

Now let us read the events of the fifth day.

And Elohim said, Let the waters bring forth abundantly swarming creatures (sheretzim), having life, and let fowls fly on the face of the expanse of heaven.

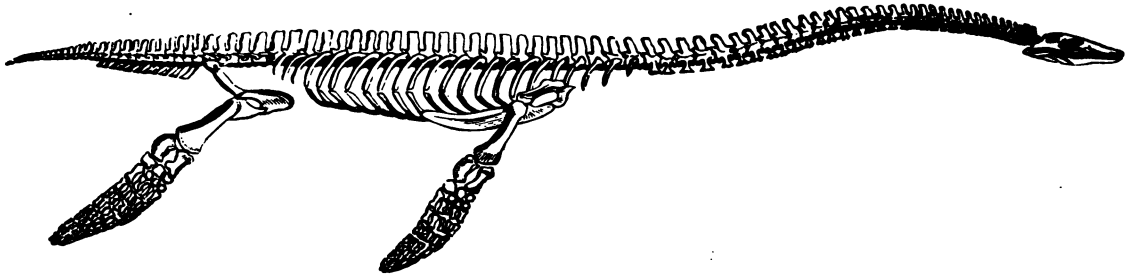
And Elohim created great reptiles (tanninim), and every creature having breath of life that moveth, which the waters brought forth abundantly after their kind, and every winged fowl after his kind.

And Elohim saw that it was good. And Elohim blessed them, saying—Be fruitful, and multiply, and fill the waters of the sea, and let fowl multiply in the land. And the evening was, and the morning was a fifth day.

You will remember that we saw that the carboniferous period, glorious in the luxuriant verdure of its forests, also contained much life, and many think a great, if not the greatest, portion of this period is included in what we must look upon as the fifth of Moses' Creative Æons. Ere, however, we push our enquiries into the course by which God traversed the space between eozöon

and man and the channels in which life ran, we have the still graver question to ask—"Whence came it?" Low as was the condition of the protozoa they still had *life*—could eat, breathe, digest—in fact, they were living creatures, and as such were a new creation, something that could not be produced from any vegetation. To those who acknowledge a Creator of course the origin of life presents no difficulty, but it has caused no small perplexity to those who would shut God out of his own universe. Sir W. Thomson and others have suggested that the first germ of life may have come to us on a meteorolite or some stray fragment of another world, casually alighting on this (though how that germ was created they do not explain); while others have attempted to prove that life can be evolved out of matter by natural causes.

To this last view Tyndall is violently opposed, and a protracted discussion has of late years been carried on between him and some French chemists, headed by a Mr. Bastian, on this subject, in which the latter have been conspicuously worsted. Haeckel, Huxley, and some others hold that certain atoms of carbon, sulphur, hydrogen, nitrogen, and oxygen accidentally combined to form albuminous jelly-like matter, which became a living monera capable of growing, moving, and multiplying copies of itself, and that from this chance formation all life has come. Tyndall, on the other hand, points out that



Skeleton of the Plesiosaurus, one of the "tanninim" or reptiles of the Saurian period, translated "whales" in Gen. i. 21. See page 85.

forces which had produced life once could undoubtedly produce life again, and he challenges the chemists so to combine the substances named by Haeckel as to make living creatures. So far this has never been done; there have been many false alarms, but no one has as yet succeeded in changing dead matter into living organisms.

I do not know that we need distress ourselves about this controversy, as science is nothing if not exact. The world certainly will not accept Haeckel's theory unless he can reproduce in his laboratory what he says nature did by chance; but, on the other hand, if in days to come chemists can find out the secret of life, and change inanimate atoms into living creatures, they will only be proving to us that when in the beginning God created the heavens and the earth he endowed the gaseous matter from which this planet was formed, not only with the possibilities of beauty with which nature is clothed, but with the germs of life as well.

The geological ages during which life existed are for convenience divided into three periods, the first of which is called paleozoic, or old life, the second mesozoic, or middle life, and the third kainozoic, or new life, by which English terms we will distinguish them during the present reading. Before, however, we question the rocks, let us see word for word exactly what the Scriptures say. I have already read you an exact literal translation of the Creative order of the 5th day, and if you will turn to your

Bibles you will see what differences from the authorised version we have to insist upon. They are two in number: the first occurs in the 20th verse. You will see the Hebrew says—"Let the waters bring forth abundantly-swarming creatures," the idea being not so much the abundant things which the waters are to bring forth as the abundant re-productive powers which the animals themselves are to possess. The word used for "creature," is used also for fishes, marine animals with or without scales, locusts, centipedes, and other insects; and it would exactly represent the characteristics of the first animals which we find—the lower kinds of life having been singularly numerous and productive. As an example of this, you can take the chalk cliffs, or limestone rocks of our own land, which are mainly formed, as you know well, from the remains of infinitely small marine creatures. When you think of the untold millions of these minute miscroscopic creatures that must have lived and died before these cliffs could have been formed, you may gather some idea of how well-deserved is the epithet, "abundantly swarming," to such animals.

Another example is furnished by a substance in constant use by some of you—I mean what is known as "Tripoli" powder, which is prepared from a kind of stone got in Bohemia and North Africa, and is used for polishing metal, marble, etc., in this country. This stone is only an accumula-

A thin slice of Chalk seen under microscope, showing that it is composed of minute shells of the Foraminifera imbedded in a granular basis of lime.

tion of the flinty coverings of minute animals, known as diatoms, so infinitely small, that the remnants of some thousands of millions go to a single cubic inch of stone. So also in insect life. You have read enough about insects, beetles, and especially locusts, to know the innumerable millions in which they invade the districts which are cursed by their presence.

The next point is the word translated "whales," in verse 21. I wish to call your special attention to this, as it was made the text for a most bitter attack on Scripture by Professor Huxley; and I think a consideration of the passage will show you that Huxley's course was unworthy of a man of his great abilities, if it does not also suggest how hard up he must have been for points of attack, when he stoops to make an ungenerous use of an admitted mistranslation.*

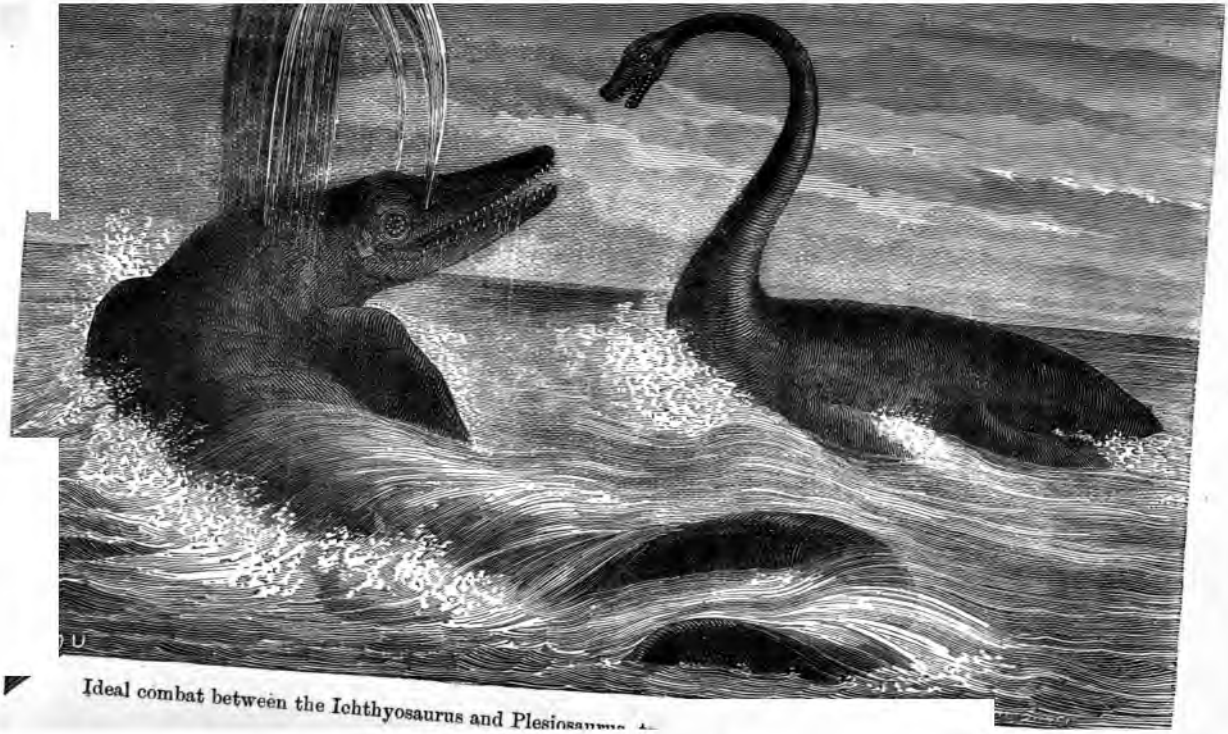
The Hebrew word, rendered "whales," is "tanninim," and it is translated in almost every other place in the Bible (it occurs about forty times) either as a "serpent" or "dragon." For instance, this is the word used when Moses,

* In his American lectures he is reported as follows—"If it be true that all varieties of fishes and the great whales and the like made their appearance on the fifth day, we ought to find the remains of these animals in the older rocks—in those which were deposited before the carboniferous epoch. Fishes we do find in considerable number and variety; *but the great whales are absent*," etc.

standing before Pharoah, casts down his rod and it became a "serpent," Exodus vii. 9-12. It is translated in Deut. xxxii. 33, "dragons," and this latter translation is the one usually finding favour. Now we all of us know the kind of animal which is represented when the patron saint of England is shown on the reverse of an English sovereign as slaying the dragon. It is a huge reptile, usually with wings and enormous teeth, and of great destructive power. We shall see in a few minutes that this description, far from being an erroneous one, is about the very best that could have been given of the life of that period.

The Bible statements, therefore, concerning the fifth day are (1) that all life originated in water, (2) that the first forms of life had abundant powers of re-production, (3) that the next period of life was filled with huge reptiles which, in their turn, were followed by birds. Now, let us question the rocks, and see whether or no they agree with this story. We will take, first, the old life period, and after the eozöon of Professor Dawson and similar protozoa, the shape of which I explained to you in a previous lecture, we come across sponges, worms, trilobites (a kind of mud haunting shell-fish), corals, star-fish, shell-fish, all animals living in the water, and, more than that, incapable of living on the land. We then find fish of a larger kind, like our sturgeon,*

* See plate facing page 120.



Ideal combat between the Ichthyosaurus and Plesiosaurus

with strong horny scales, then scorpions, lobsters, prawns, shrimps, spiders, insects, and a kind of powerful shark with teeth more suited for sea-weeds than carnivorous food. This brings us to the end of the carboniferous period, and up to this time we have found no reptiles, no birds, and no quadrupeds.

The next step brings us to animals no longer requiring gills, but able to breathe the air and live either in or out of water, such as turtles, lizards, crocodiles, and huge reptiles of inconceivable variety and enormous size, some of them not unlike the traditional sea-serpent; in fact, so infinite are the varieties of these reptiles that geologists call the age that of "Saurians," or, in plain English, the age of reptiles. They and their congeners were, of course, the tanninim or dragons of Moses. It would require a whole chapter were I to endeavour even to give you a short description of the various monstrous animals which abounded both in the sea and on land at this period. Armed with sharp tearing teeth, like those of the tiger, with massive bones denoting their strength, and reaching to a total length of sixty or seventy feet, these colossal animals must have been the tyrants of their age.

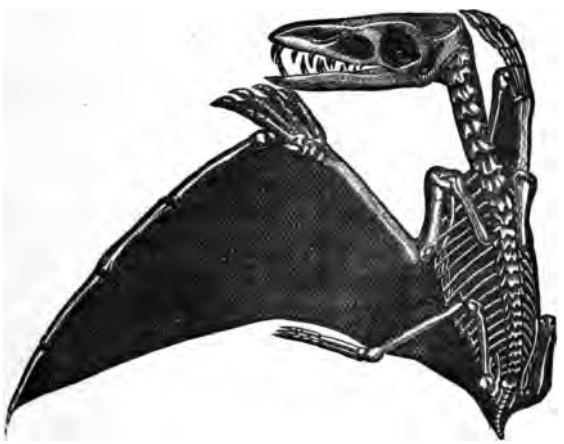
Even the smaller ones, such as the Ichthyosaurus (*i.e.*, fish-lizard), and Plesiosaurus (*i.e.*, nearly allied to a lizard), must have been infinitely more formidable than any reptiles now inhabiting the earth. In the stomach of one of the former have been

found remains, not only of fish and other animals, but also of its own kind, proving that it not only preyed on its weaker neighbours, but indulged cannibal propensities as well. It was mainly a marine animal, but the immense power of its jaws and teeth will be noticed in the accompanying plate. The Plesiosaurus was also a marine animal, with teeth like those of the crocodile, but possessed of a wonderfully long and graceful neck, which would enable it to make sudden darts at its prey, while itself keeping near the surface of the water. Specimens of many of these animals may be seen at the British Museum.

Immediately to these succeeded lizards with wings, one of the first steps towards birds, though footprints of some large bird somewhat like an ostrich have been found on the rocks of the earlier Saurian period. These flying reptiles, or Pterodactyles,* as they are called, form a curious class as wholly different from any existing species as were the Saurians we have just been considering. In the plates representing these animals, you will notice the wing shaped like that of a bat, while the huge ungainly head and formidable teeth, remind you of a crocodile. Shortly afterwards real birds make their appearance, some of them, apparently, armed with teeth, and in structure somewhat reptilian, but still hot-blooded animals, and there-

* See plates facing pages 86, 96, 100.

Periods.	Systems.	Origin.	Animals.	Plants.	Remarks.
The Age of Sauri[illegible]					
or Middle-Life Period.	Jurassic or Oolite.	Estuarine and Marine.	*Vertebrates*—Great prevalence of huge reptiles, fishes with tails shaped as now—first birds.	Endogenous.	And God said, "Let [illegible] and every winged fowl.
	Cretaceous.	Marine. and Fresh Water.	*Vertebrates*—Passing away of the huge reptiles. Ordinary bony fishes.	Angiospermous Exogens (*i.e.*, trees with bark, and having seed enclosed in a seed vessel, such as oaks, chesnuts, etc.)	
The Age of Mammals. 3. Tertiary or Kainazoic or New Life Period.	Eocene.	Fresh Water, Estuarine, and Marine.	*Vertebrates*—Mammals (specially thick skinned, such as modern rhinoceros). Land snakes for first time. Fishes much like present ones. Whales.	Exogens prevalent.	
	Miocene.	Marine and Fresh Water.	Many species now existing, specially among invertebrates (*i.e.*, animals without back bone, such as shell fish, etc.), mammals, deer, elephants, mastodon, dinotherium, monkeys.	Exogens — Many European trees much like those in tropical countries now.	And God said, "Let the earth bring forth cattle (herbivorous), creeping things (land reptiles) and beasts of the earth (carnivorous).
	Pliocene.	—,,—	Invertebrates, such as now exist very numerously — mammals, horses, mammoth, mastodon, elephants; 90 per cent. of shell fish belong to existing species.	Many modern trees.	
Sometimes called Post-Tertiary.	Post-Pliocene.	Various, such as raised beaches, alluvial deposits of rivers	Some existing species of mammals; existing invertebrates common.	Existing vegetation.	And God created man in his own image.
	Post-Glacial and recent.	such as Nile, river gravel, cave deposits, glacial deposits.	Man and existing animals.		



Pterodactyl. A link between reptiles and birds.
See page 86.

fore not reptiles. As yet the only signs we have of quadrupeds are those of some marsupials, or pouched animals, like kangaroos. In fact, the present fauna of Australia seem to represent the type of the first mammals of which we have any record. About this time terminates the fifth day, and immediately afterwards the period known as "middle-life," so we must turn to our Bible for its account of the earlier events of the sixth and last creative æon.

And Elohim said, Let the earth bring forth animals after their kinds; the cattle (herb-eating), the creeping things (land reptiles), and beasts of the earth (flesh-eating), after their kinds; and it was so.

And Elohim made flesh-eating mammals after their kinds, and herb-eating mammals after their kinds, and every reptile of the land after its kind; and Elohim saw that it was good.

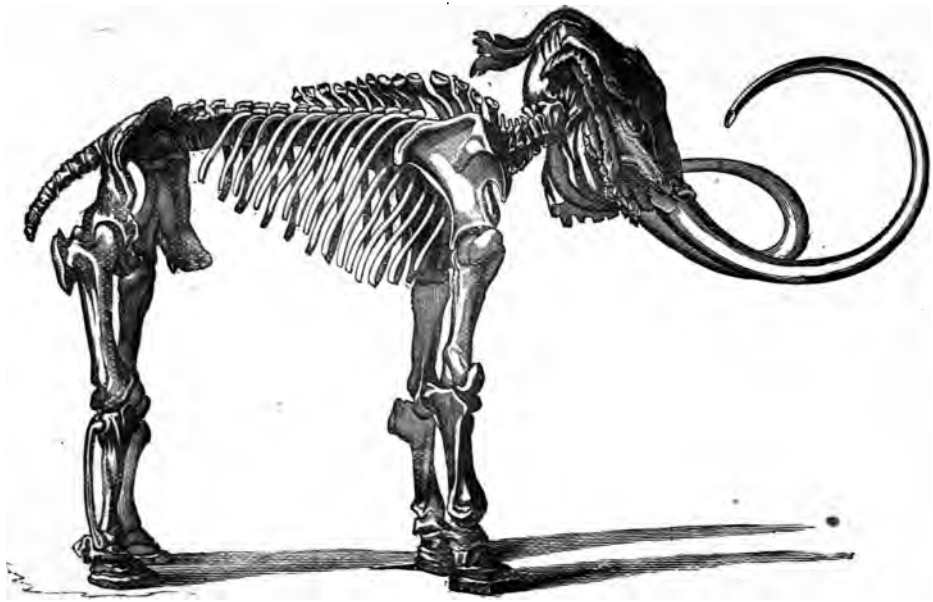
You will notice here that in the two verses we have just read, the same order is not preserved, proving that the writer was dealing with broad outlines, and not going into minute detail.

The geologist has already told you that no quadrupeds other than marsupials had been found up to the end of the middle-life period. Immediately, however, that birds became tolerably plentiful, you find the first signs of ordinary mammals, the earlier descriptions belonging to the thick-skinned animals, kinds such as our modern rhinoceros. With them also came the first specimens of land snakes as we know them. I need not follow with you the long tale the rocks

could tell you of the constantly improving and increasing species of land animals which lived and flourished during the new life period, which has gained for the last geological æon the name of the "age of mammals"—mammals being a general term given to animals that suckle their young; suffice it to say, that as the age of reptiles passed away, the pouched animals were succeeded by others more like those known to us.*

Simultaneously, vegetable life such as we know began to grow, poplars and beeches, cypress trees, and tulips flourished, whilst of fishes we find remnants of the salmon and herring, besides abundance of birds. During the new life period appeared whales, crabs, many insects (1300 species in one division of the period alone) opossums, ant-eaters, rhinoceros, tapirs, hippopotami, camels, deer, elephants (in England), and monkeys, in addition to which land animals of a huge size existed, larger than the elephants of to-day, some of which did not die out till after the creation of man, inasmuch as a rough sketch of a mammoth scratched on bone has been discovered among human remains. The ice also has preserved the forms of some of these creatures for us, frozen bodies of the woolly rhinoceros, and the

* A good idea of the animal and vegetable life characteristic of each geological period as gathered from the rocks, and their complete harmony with Scripture, may be got from the chart facing page 86.



Mammoth.

mammoth having been discovered in icebergs in the Arctic regions, and in Siberia. It is notable as exhibiting the power of ice to arrest decay, that the flesh of these animals, though thousands of years old, was still fit to eat, and was greedily devoured by dogs and wolves.

Before, however, we finally leave this age of mammals, I may point out that just as huge reptiles characterised the age of Saurians, so some of the quadrupeds which flourished at this later period were of a size and power considerably exceeding any now existing on the earth. Without attempting to go into any detail, a short general description of a few of the most notable of these monsters may be interesting to you.

One of the most remarkable, and perhaps the largest, was the so-called Dinotherium (*i.e.*, terrible animal), a creature somewhat resembling an elephant, though of much more massive proportions. Its tusks were attached to its lower jaw, and turned downwards and inwards towards its chest. Huge as was its size, and alarming the name given to it by modern geologists, it seems to have been of a peaceful nature, and to have lived entirely on herbs, using his powerful tusks mainly in digging up roots of trees growing in marshy places, of which, like the elephant, it seems to have been very fond. The mastodon was very much the size and shape of our elephant, though apparently furnished with two sets of tusks.

Deer were equally large, one species of elk having existed in Ireland, and another, known as the Sivatherium (animal sacred to Siva), having been found in India. An equally curious class of animals was that to which the Megatherium and Mylodon belonged. This was a kind of huge sloth with bones more massive than those of any living quadruped, and which seems to have actually torn down, or uprooted bodily, the trees on the branches of which it wished to feed.

Finally, and as we have seen existing contemporaneously with early man, comes the Mammoth, of which a vast number of remains have been found in Siberia in a state of such preservation as to make us perfectly familiar with its structure. This huge animal, larger than the largest living elephant, was about 16 feet in length and 9 feet high. Its tusks were bent almost into a circle, and sometimes as much as 12 feet long. It was protected from the cold by a thick coat of reddish brown wool, nine or ten inches long, intermingled with coarse black hair more than a foot in length. With all these herbivorous animals, however, numerous beasts of prey roamed through the woods of the new-life world. Bears, lions, and tigers, both large and small, fed on the weaker forms of life; while monkeys of various kinds swung from tree to tree.

Up to the latter portion of the age of mammals, the climate of the globe seems to have been everywhere warmer than it is now, and in Britain, lions,

Mylodon. A kind of huge sloth with immensely powerful fore-limbs. This animal is believed to have torn down or uprooted bodily the trees on the branches of which it wished to feed.

hyenas, hippopotami, apes, elephants, crocodiles, and many animals generally associated with warm countries abounded. Towards that period, however, and before the appearance of man, a sudden and not yet thoroughly explained change* took place, ice and snow pushing their way southward, taking over nearly all Europe, and the greater portion of North America, and extending as far south as the Lebanon range in Syria, near the Holy Land, and in Atlas. The signs of this so-called "glacial age" are found in nearly every mountain range in Europe and America, great glaciers † having crushed their icy way down the hill-sides into the valleys, tearing and grinding rocks in their path, and carrying huge boulders of stone, hundreds of tons in weight, and leaving them in plain and prairie as silent witnesses of their mighty power.

How long the glacial age lasted, and what caused it to come at all, or having come to pass away, is not known, but it is certain that man existed as this period of cold was on the wane, and

* Many theories have been put forward, but none have as yet met with the general approval of those most competent to judge. Sir C. Lyell attributes it to a different distribution of sea and land and ocean currents; Croll, to the varying eccentricity of the earth's orbit in connection with the precession of the equinoxes; others, again, to a change in the inclination of the earth's axis, or to supposed recurrence of periods when the sun gives more or less heat.

† See plate facing page 114.

in Europe he seems to have followed the retreating ice northward. The condition of primeval man, and the probable date of his appearance on the planet are too large questions to touch this afternoon, suffice it to notice that in Asia, at any rate, he seems from the first to have had some civilisation, and to have been immeasurably above the level of any of the beasts around him. The Bible asserts a special gift for him, which was withheld from all others, and the possession of a "living soul" is granted to man alone. Science has to admit what Huxley calls an "immeasurable gulf . . . . practically infinite" gulf between man and beast, and is unable to account for it, or to bridge it over.

I do not think I need trouble you this afternoon with any more details, but I will ask you to notice a few results of our search. In the first place, we have seen that there are four things which science cannot account for, viz., the origin of matter, the origin of motion (or the energy which that matter possesses), the origin of life, and the origin of the soul of man. I want you now to turn to your Bible, and see the places where God uses the word "create." Holding as I do, that the writer of the book of Genesis, though inspired with certain truths, used his own language, I do not want to make too much of this point; but the coincidence at any rate, is a striking one that you find that the word "create" is only used in the first verse, the

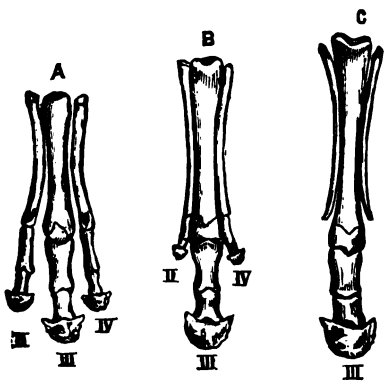
twenty-first, and in the twenty-seventh verse; in other words, the creative power of God is only said to have been exercised on the first, fifth, and sixth days, or to speak plainly, matter, motion, life, and the human soul are the only four things God is said in the Bible to have "created." Everything else we are told was brought forth, or made by evolution or some other law through which God carried out his plans.

Now this is not a mere quibble of words. A mechanic may *make* a table or an engine, but he *creates* nothing. He merely uses a material that is put into his hand. The difference between creation and making is very marked, and in the third verse of the second chapter you will find God rested from all his work which he *created and made*, showing there was a distinct difference in the writer's mind between the two words. But some of you may ask me how does this story of the creation agree with Darwin's theory of evolution?* Now I must say that I cannot see the smallest reason why the two truths cannot run side by side side together. We hold, as Christian men believing in a revelation from God, that all matter and

* Evolution means literally to unroll, the idea being that as a species developes, certain traits or powers are evolved or unrolled which were not seen in the original stock. It is governed by environment and heredity—the former having reference to the power of surrounding circumstances to alter that which heredity perpetuates.

the entire universe once had a beginning, and that it found its beginning in the creative power of God; but it is nowhere said or claimed that God made every distinct animal; neither is it a less wonderful thing to create a lower form of life which through long ages was developed into nobler and purer shapes, than to make each set of animals the subject of a distinct creation.

So far from looking upon Darwin's theory as antagonistic to the Bible, I believe that he has done good service both to science and Scripture by his honest and deep research into the secrets of nature. Evolution will utterly fail if it stands alone with no guiding hand behind it, but as a means to an end, as the way God took by which to work out his own purposes, evolution stands out as an exquisitely beautiful law—a working from the evening to the morning, from inferior to superior types of life, corresponding exactly with the usual way in which God carries out his purposes. I suppose most of you are familiar with the instance of the horse by which Huxley illustrates the theory of evolution. He shows you from fossil remains found in the rocks that animals were at first five-toed, and that animals like a horse are found with four distinct toes. As the ages rolled on the centre toe showed a disposition to increase, and the nail to grow into a hoof, while gradually the superfluous toes were absorbed and ultimately dispensed with, though in the two



A, foot of Anchitherium. B, of Hipparion. C, of Horse, showing how the superfluous toes have gradually been absorbed till they now only remain in the splint bones of the modern horse.

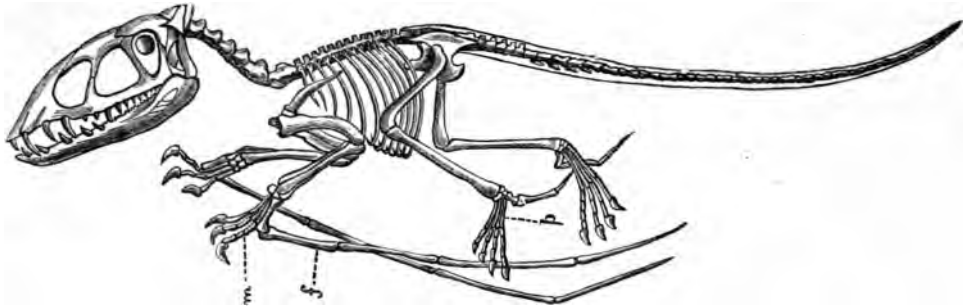
splint bones just above the horse's hoof you find the last remnants of what were once well-developed toes. Now this is intelligible enough, if we put behind the law of evolution a God who, in preparing a universe for the inheritance of his children, prepared also animals suitable for their use, over which they were to have control; but failing the guiding hand of God, why should not all animals have developed hoofs like horses? Can evolutionists show us anything special in the nature of a horse which made his foot develop into a hoof, while other animals retained their original structure?

Again the whole theory of evolution rests on a gradual improvement in the type of animals, and, therefore, we may assume, in their various organs also. If all living creatures have come from protoplasm or a mass of jelly, you would expect to find first the beginning of an eye which, as ages went on, would develop into the perfect organ we now possess. So far from this being the case however, some of the very earliest animals in creation—the trilobites—have eyes as perfect as any enjoyed now, and some of the most perfect eyes occur in the earlier forms of the trilobite. We say therefore, that while we owe a great debt of gratitude to Darwin for having pointed out the mode and method by which the Heavenly Father prepared this planet for his children, there is not the slightest reason to deny the existence of a Divine Wisdom utilising and ordering the law, nor, in the absence

of such a directing Power is the law itself capable of accounting for nearly all the variations we see in nature's handiwork.

There is one more objection I would like to touch upon before I close, and that is the one which must occur to many of you when you think of the infinite, unknown extent of the universe, and of the inconceivably small portion of that universe occupied by our planet. You may well ask, when such thoughts occupy your mind, is it likely that the Spirit of God should have become incarnated in human flesh and have worked out such an atonement as is represented in our Bible for the redemption of so small a portion of his creatures?

Now such a question is not an unreasonable one, though we must remember even in entertaining it, that God's ways are not as our ways, and that his wisdom and love transcends our human ideas of the wise and loving as much as the infinite distances of eternity dwarf our notions of time and space. We must bear in mind, however, that as we examined the suns of other systems or the planets of our own, we have found but few of them fit to maintain life as we understand it. In our own solar system this earth, Venus, Mars, and possibly some of the moons of the larger planets are about the only ones likely to contain beings fashioned at all like ourselves. Our Sun itself, over a million times bigger than this world, is as

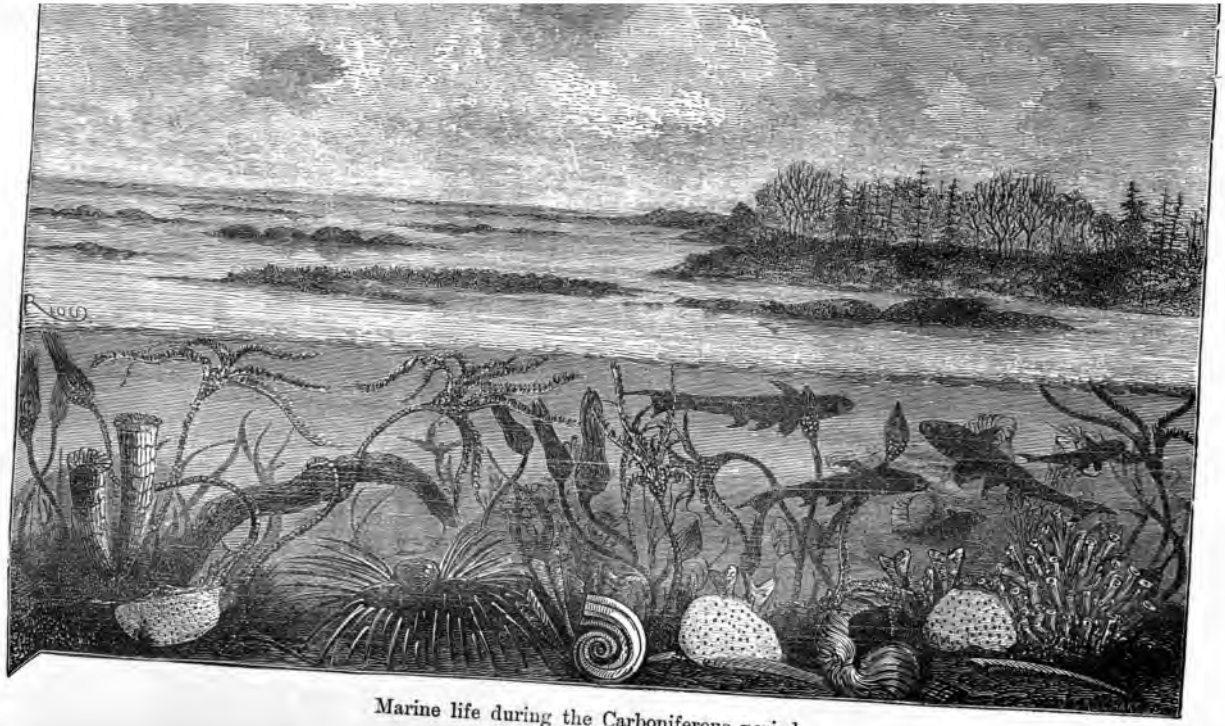


Pterodactyl, one of the links between lizards and birds. A toe on each fore leg will be noticed as immensely prolonged. It was to this that the thin leathery wing was attached, somewhat similar to that of the common bat. See page 86.

we have seen utterly unfit for any life that we can imagine; and is it wholly improbable that God may have selected some particular portion or portions of his universe on which to develop beings specially capable of being united to himself because framed in his image, or in plain English, endowed with something of his nature? We are told by Him who spake as never man spake, that on that great day when we shall stand before the throne of the Creator, the reward to those who have walked worthy of their high calling shall be to be rulers over two, five, or ten cities—at any rate, to have control over, and to find happiness in blessing, some other creatures of God. Is it, I ask you, wholly incredible that God may be seeking in this planet for a family for himself, for spiritual beings who, won by a matchless exhibition of divine love, should ultimately grow so fully part of himself as to know no sorrow but grieving him, and to imagine no joy equal to that of fulfilling his will?

If this be so what a magnificent view it gives of the advent of the Son of Man! Through ages and ages the world had been preparing, and life had been developing, until at last a soul was given and man created, to be brought in the fulness of time into complete union with God, in such a condition that He would not be ashamed to acknowledge him as his son. For this highly privileged being, He would further prepare duties yet more elevated, and opportunities of development transcending our

highest anticipations, but of which we may get glimpses in such words as "Know ye not that we shall judge angels" 1 (Cor. vi. 3)—"To him that overcometh will I grant to sit with me on my throne" (Rev. iii. 21)—"He that overcometh shall inherit all things" (Rev. xxi. 7)—"Heirs of God and joint heirs with Christ" (Romans viii. 17), and to which he would attract us with sweet words of encouragement, whispering to us that "eye hath not seen, or ear heard, neither had it entered into the heart of man to conceive the good things which he hath prepared for them that love him; but they would be revealed by the Spirit." I do desire that you should not close this reading without having a more exalted and truer view of the God who loves you, than you had at the commencement. Let us thank those, who, studying the rocks, and reading the secrets of the heavens, have brought from the bowels of the earth, and from distances which seem like eternity, constant corroborations of the truths of God, and the inspired character of this record. When, therefore, we kneel in his presence, making our words few, and remembering the greatness of the Creator, and the littleness of the creature, let us measure, if we can, in the light of fresh knowledge, and with the warmth of a new affection, the infinite safety of the man who rests on the living God—the infinite goodness of Him who hath called us unto his kingdom through Christ Jesus our Lord.



Marine life during the Carboniferous period.

V.

MAN OR MONKEY?

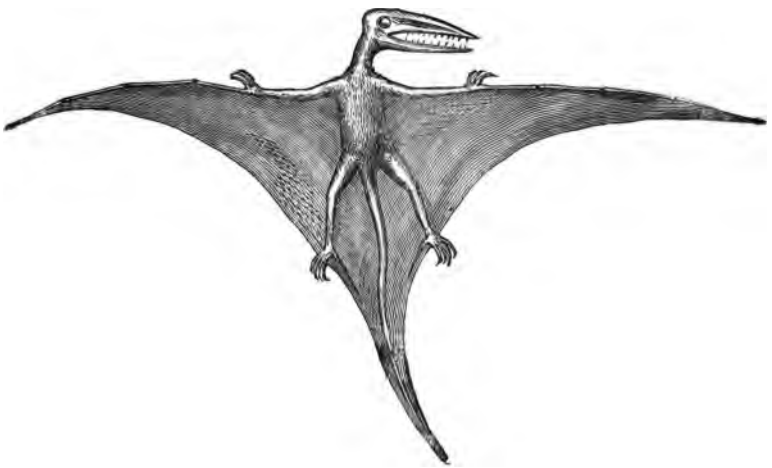
Genesis i. 26-31, and ii. 1-7.

WE have now briefly glanced at the chief events of the creative æons, and traced the progress of life from eozöon to man. We have seen that the four points which science fails to account for—viz., the origin of matter, motion, life, and the soul of man, are the only ones said in the first of Genesis to have been "created." We have traced all life from water, and seen that while one kind of life was flourishing and developing to its full extent, other and higher kinds were commencing their existence around it, ready to take its place when the first passed away. Further, we have seen that all life has in a great measure been governed by certain laws and rules, and that we owe to Charles Darwin much of our present knowledge of the method by which the Creator has worked.

On examining this law, which you will remember was called Evolution, we found that while it accounted for many of the various kinds of existence which can be traced in the past, yet there were many points where it failed; for instance, we saw that the eye of a trilobite, one of the oldest

of created things, was as perfect as the eyes of animals now existing, and that some of the most perfect specimens were amongst the oldest. Evolution was governed, you will remember, by two controlling powers (1) called environment, and (2) heredity: by environment, being meant the power of surrounding circumstances to influence or shape the actions or qualities of animals subject to them, and by heredity the law by which we inherit bodies, shapes, and natures from our parents.

As perhaps I did not make this quite clear at our last reading, let me give you an illustration which has occurred to me during the week. Those who were present at our annual exhibition, will have noticed a bottle containing certain small fish which I had captured in the Mammoth Cave of Kentucky. This cave is of such an enormous extent that to thoroughly explore it would involve a walk of nearly *150* miles. In it, underground, are vast labyrinths and passages, small rivers, miniature hills and huge chambers. In the water of the rivers are fish who from generation to generation have been born and bred in darkness, but whose ancestors no doubt once came from rivers outside the cave, and had eyes and other endowments just like their brethren. Now by the law of heredity they have kept their shape, but by the law of environment they have lost the use of their eyesight—that is to say, so many generations have spent their lives in darkness, that not only



Pterodactyl. A link between lizards and birds. Its wing is somewhat bat-like, and the present specimen is notable for its long well developed tail. See page 86.

have they lost the power of seeing, but the very organ itself has ceased to be developed.

If it be asked how far we are justified in looking to this law as the universal one ruling the development of all life, we may reply that though it solves many difficulties for us, and throws a flood of light on many a bye-way of creation, yet it fails lamentably in others. In many cases fossils of whole classes of animals suddenly appear, and as suddenly disappear, apparently in utter defiance of the requirements of evolution; this is notably the case with the class of molluscs known as trilobites, a representation of which we have had before us, and with insects in general, which latter burst unexpectedly on the scene in the Devonian Strata. Many similar instances could be given, but these two are sufficient.

Again, just where almost unlimited ages are apparently most required, viz., between the middle and new life periods, we can find but little record of them. The transition from the one period to the other does not seem to have taken nearly so long as some other geological changes, but in it we not only find mammals supplanting reptiles and birds, but nearly every species of mollusc, fish, bird and reptile alike, ceases to exist, and is replaced by a new species in the commencement of the age of mammals. Is it a mere chance that this curious and startling change takes places just where our Bibles state that there was a kind of

new departure, viz., at the commencement of the sixth day?

I am dwelling pretty closely on this subject, because some of Darwin's disciples would go further than their master, and endeavour to demonstrate that not only is all life developed from protoplasm (a fact, you will remember, which is still far from being proved) but they hold that man himself is but a further development of the first principle of life which we find in the protozoa of the primeval seas. In considering this question you must remember that a matter of crucial importance to the Evolutionist is *time*. He admits that he requires not only centuries, but many thousands of centuries to produce, by his law, all the various forms of life from a single germ without the interposition of a Creator. You must bear this well in mind, and when time is asked for you must make up your mind how much it is reasonable to allow. Whenever some of these theorists find themselves landed in a difficulty, they generally try to get out of it by talking vaguely of millions of years, as if they could be had for the asking. Now, fortunately we are not quite at their mercy in these matters, and when Lyell, and others, claim two, three, and even six hundred millions of years for the working out of their pet theory, we are able to turn to men learned in other branches of science, and ask if these demands can be admitted.

In doing this we are met by a startling con-

tradiction, for we are told that the very outside period which this globe would take to cool down from a red-hot fluid state, into its present condition, is forty million years, while many of our ablest men put it at less than half that time. If, therefore, Tait and Thompson, and other capable physicists are correct, the theory, that evolution alone and without a Creator behind it, evolved all life from a single germ, falls to the ground on the showing of its own friends. In all our enquiries you must bear this in mind, and remember that the Evolutionist (and by this term I mean one who looks to evolution *alone*, and not to evolution as one of God's laws), utterly fails to explain where, and how, he is going to provide the ages he admits to be necessary for his purpose.

I did not intend to dwell on this subject at all, because the question of the origin of man is wrapped in so much mystery, and so many divers opinions are held on the subject that it is impossible to come to any conclusion which can be in accord with all the principal scientific men. If we must approach it, however, and such appears to be your wish, let us do so remembering that there is nothing in the least unscriptural in the theory of evolution. The Bible simply tells us that man was formed from the dust of the ground, and believing as we do the story of creation to be merely a noble inspired poem sketched in the widest and most general outlines, there is nothing unreasonable

in the evolutionist saying—Well, your own Bible tells you that I am right, for what more correct description could be given of a descent from the beasts that perish than that written by Moses, viz., Man was formed from "the dust of the ground"!

There is indeed one point where we should have to differ from the evolutionist as far as the poles, and that is as to the existence of the soul of man. Those disciples of Darwin, who contend that there was no creative act at all between the first strugglings of life and the existence of man as at present constituted, must and do find themselves in direct contradiction to what we believe to be the word of God. We are told that God breathed into Adam the breath of life, and whatever interpretation we may put on these words, they clearly imply something entirely different from the existence of the beasts that were previously created, or the life that was so bounteously brought forth by the sea. As far as regards the theory of evolution, therefore, we need only say that while we are perfectly open to conviction as to whether the body of man was actually created from the dust of the earth, or whether it was gradually developed from the beasts that preceded him, yet upon the point of the creation of man's soul we can admit no possible compromise with their doctrine.

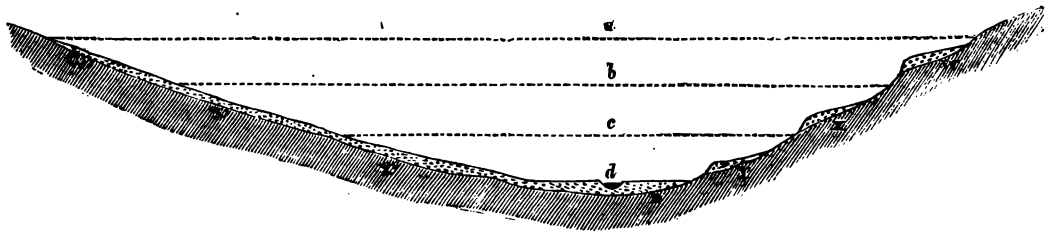
Before, however, we can agree even as to the fact of man's body having been evolved of the brute beasts, we should require a good deal of posi-

tive evidence. In the first place, we should require to find that the skulls of the earliest men were all of a very low order, only slightly superior to that of the ape. We should then require to trace a gradual improvement in the skulls of men, as the race increased in capacity, until the intellectual organs were equal to those of the European of the present day. Now, as a matter of fact, there is not one jot or tittle of evidence to prove any such thing. It is perfectly true that a skull which is believed to have belonged to a pre-historic man, and found in Germany, is low and brutal to a very marked extent, but it is still equal to that of a Hottentot of the present day; whereas at Mentone and Cro-magnon, in France, the remains of other men have been discovered, who must have existed in the very earliest ages of mankind, and their skulls are as fully developed and as well formed as that of any one in this room. Some have endeavoured to explain one of these as having been the skull of a philosopher, but surely by the law of evolution, we require a race of philosophers to have existed before such a good skull could have been produced from the brain-pan of an ape.

As a matter of fact, so far from having obtained any connecting link between man and beast, all the more recent evidence collected by scientific men seems to go in directly an opposite direction. The earliest records of men hitherto discovered are probably those found in the cave at Cro-mag-

non. One skull, that of an old man, was in a singularly perfect condition, and those of two others, a younger man, and a woman whose skeleton still bore the marks of her death-wound, were also in good order. The race of men to whom these, the earliest known Europeans, belonged, must have possessed bodily and mental qualities in absolute contradiction to those required to connect them with the lower animals—the brain-power is equal to our own, the physical strength superior—in fact, the skull seems to denote the possession of all those qualities we connect with civilisation, and the shape and size of the bones indicate great muscular development and length of life. The remains of those races which come after these lead us to believe that they were inferior to them, thus directly supporting the Bible statement that man fell from a superior to an inferior condition, and completely traversing the arguments of those who would represent our first parents as filthy and bestial savages.

There is another point we must touch upon before we can get fairly into our subject, and that is not only the origin of man, but the approximate date of his advent on the earth. Evolutionists tell us that just as they require infinite ages for the development of man from the earliest forms of life known on this globe, so they must have hundreds of thousands of years given them for the production of civilised races from the savages which



Section across a river valley. The valley has been excavated by the river, and at various points on each side of the valley terraces of gravel are shown as having been deposited by the river; *a b c d* represent various levels of the water from (*a*) ancient down to (*d*) modern times; *w x y* are gravel terraces; *z*, deposits now being made.

they claim to have been our first parents. Sir Charles Lyell in one instance speaks of 600,000 years, and though he has recently reduced this very considerably, yet you will have noticed that Sir John Lubbock, in his address to the British Association this year, spoke of 100,000 years as the probable date of the first advent of man. Now this view is held by a great many able men, but by no means by all of them. In a short lecture like this we cannot go very deeply into the details, but I will give you two or three of the chief arguments as to the antiquity of man, with the replies to them, and you will see that the matter is still, so to speak, in court.

In the first place, those who argue for a great antiquity for man point to the fact that human remains are found in gravel drifts, or deposits which must have been formed a very long time ago. Thus, for instance, supposing a river to run through a valley, sometimes the remains of man are found in gravel deposits 100 feet above the present level of the water. The evolutionist claims that the valley has been cut out to that depth by the action of the water since these deposits were made. He then calculates the pace at which the river is now wearing away the earth or rock, and says that so many thousands, or hundreds of thousands of years are necessary for the operation.

The reply offered to this is that the valley was

not excavated by a post-glacial river at all, but in pre-glacial times; and that the gravel beds were deposited in the valley when it was submerged and filled with water by a deluge which all geologists admit, and which was probably later than that of Noah. This deluge, called the flood of the Loess, which spread over a great part of Europe, Asia, and America, has left very marked signs in all those countries, and very probably the water marks pointed out are only those left by this period when the whole valley was full of water, and the gravel and human remains deposited simultaneously. In support of this they point out that the river Somme in France, where these remains chiefly occur, is very sluggish in its flow, and that from the nature of the ground it never could have been rapid, and that no reasonable number of centuries would have enabled such a river to have excavated the valley through which it flows. As the flood referred to is of comparatively recent date—only a few thousand years ago—they argue that the existence of some of these gravel drifts and human remains therein prove no greater antiquity for man than the flood of the Loess.

Another argument is derived from the thickness of the peat bogs over certain traces of human workmanship. Of course everything hinges on the pace at which a peat bog grows, *i.e.*, the length of time it takes to form so many feet of peat over a certain object. Much new light has been thrown

upon this lately, and it has been shown most clearly that instead of some 30,000 years originally claimed, 4000 or 5000 would be amply sufficient.

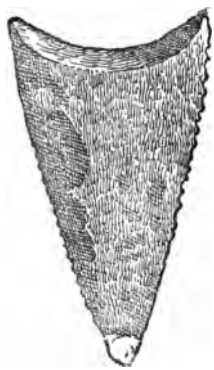
The next argument brought forward in favour of a high antiquity for man, is from the so-called lake habitations. Sir John Lubbock, in one of his books describes primeval man as having constructed his dwellings on piles driven into the soft mud in some of the lakes which abounded in Europe, and to have chosen such a position, mainly from fear of wild beasts or other enemies. Remnants of these lake dwellings are found in Europe and America, especially in Switzerland; and in the mud beneath they have discovered the early implements used by the builders of the houses. Some of these implements are of stone, some of bronze, and some of iron, and antiquaries have divided the time of which we are speaking, into the stone, the bronze, and the iron age. The argument is, that man being a mere savage, little better than a beast, and utterly unacquainted with all arts and sciences, chipped his flint, and made a knife, or sharpened his stone for an arrow-head, and could provide nothing better; that as he became a little more civilised, he found out the use of metals, and used them for domestic and hunting purposes.

The reply to this is, that generally stone, bronze and iron implements are found in the same villages; whereas, if for long ages the human race was being developed from brute beasts, we should

certainly find many lake dwellings containing only stone implements, then others containing only bronze implements, and others, again, where iron alone was used. In addition to this, it is pointed out that on the column of the Emperor Trajan, at Rome, are depicted lake dwellings showing that the German tribes whom he had met on the Danube and in Austria, were lake dwellers only 1700 or 1800 years ago. If, then, some of the more civilised savage tribes in the days of Christ, were lake dwellers, why should we suppose the other lake habitations to have been so very ancient? The historian Herodotus describes the fishermen on Lake Prasias, in Thrace, near the Ægean Sea, as being lake dwellers, and to this day you may find these people dwelling in somewhat the same fashion.

In connection with this subject arguments are brought forward on both sides with reference to heaps of shell-fish and other refuse which have been found in various places, especially in Denmark. These heaps, known by the name of "kitchen middens," are undoubtedly relics of races of men long since passed away, and in them are found flint implements, pottery, and the bones of various animals, the latter often split open, apparently for the purpose of extracting the marrow.

An extreme antiquity is claimed for these mounds, on account of the rudeness of most of the flint weapons, and the absence of metal. These



Danish Flint Arrow Head of a superior make.

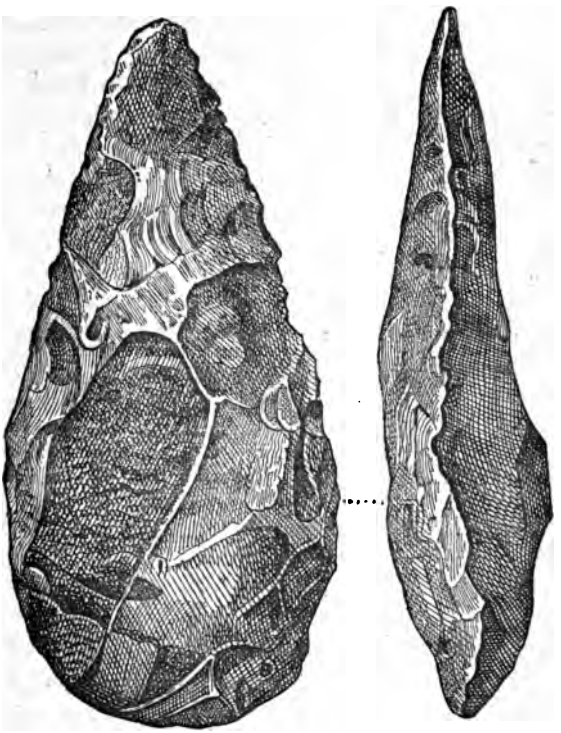
claims, however, are fully met by the fact that iron was not known in Denmark till some centuries after Christ, while some pieces of pottery and coins found in shell-mounds on the Channel Islands and in England, were of undoubted Roman origin. Similar mounds are common throughout America, and their contents prove that some of them at any rate owe their origin to Indian tribes of comparatively recent date.

Another argument, and one of great importance, is taken from the existence of the so-called cave men. These remains were discovered in various caves which had apparently at one time been used as human habitations. Of course, the original floor of the cave was solid rock, and antiquaries, in removing the more recently formed deposits from the floor of the caves, have found the remains both of human bones and animals lying under five or six feet of stalagmite. They urge that the fact that many of these beasts are extinct, and the immense thickness of the stalagmite deposit, both argue enormous antiquity for man. It is further urged that bones of men, and of lions, and elephants have been found in Western Europe, lying side by side, and evidently of the same date, and that England and France for many a long year must have been far too cold for the lion or the elephant.

The reply to the first point is, that stalagmite may be far more rapidly formed than the antiquaries are willing to admit. I must explain to

you that the stalagmite is caused by water charged with carbonic acid gas dropping from the roof of a limestone rock on to the floor of the cave. This water has the power of gradually decomposing the rock through which it passes. It thus gets surcharged with lime, and when the drop falls on the floor of the cave, it parts with some of its carbon, and resolves itself into solid limestone rock, or stalag-mite. A very perceptible crust of this has been known to form inside gas-pipes in a few months, and it has been known to form under favourable conditions at a very considerable pace, even as fast as the third of an inch in a year, so that six feet would not necessarily involve a very long period of time. It is, moreover, pointed out that what kills animals in England now-a-days is not *cold*, but the damp. Beasts of prey can stand the intense cold of Thibet, because it is a dry cold, and in menageries in England it is bronchitis and lung diseases that carry off the tropical animals. From this it is argued that there is no reason to suppose that the lion and the elephant could not have lived in England within historic times, provided only that the climate was dry instead of being damp, as it is at present.

You will have noticed constant reference to the stone implements and weapons found among other relics of early man, and attempts have been made to divide the time since he first appeared into four ages, viz., those of old stone implements, new stone



Rough Danish Flint Knives.

implements, bronze, and iron, the latter being that in which we live. The more we learn of early man, however, the less such arbitrary divisions seem possible, good and bad stone implements being mixed up in the same caves, and these again with remnants of metal. Nothing is more probable than that some of what are looked upon as the inferior kinds of flint weapons are either altogether or in a great part the work of nature, or were used wherewith to shape and fashion better ones. Very possibly, also, tribes may have sometimes run short of flint arrow heads or spear points when out on a hunting expedition, and have been satisfied with very rude make-shifts till they got home.

There is nothing in the fact of nations having used stone weapons to prove great antiquity. Many of the men in Xerxes' army were so armed five centuries only before Christ. In Denmark such implements were used after Christ, and it is very doubtful if stone battle axes were not made use of at the battle of Hastings. Dr. Schliemann, in searching for ancient Troy, discovered the remains of a city which contained only stone implements above, and therefore of course subsequent to one where bronze had been used, and in modern days, when America was discovered some 300 to 400 years ago, all the North American tribes were still in their stone age, and were leaving behind them no records of a higher civilisation than did the earliest discovered European men. Indeed,

from all we can learn of them, the first dwellers in Europe, both in appearance, habits, and weapons, must have very much resembled the Indians found by the pioneers of civilisation on the American Continent. It is not probable that metal came into such general use as altogether to supplant stone even among the more civilised Eastern nations before the Phœnicians discovered an abundant source of tin in the Cornish mines some 800 years before Christ, thereby enabling them to furnish the ancient world with a tolerably cheap supply of bronze.

I thought it best to give you these short outlines of the arguments used on both sides to show you about where the discussion is at the present moment. I will now try and give you a short sketch of what all admit, and we shall then perhaps be able to arrive at some conclusion.

It is admitted on all sides that at some undefined period man was found scattered all over Europe, south of the Baltic, and as far north as Yorkshire, in England. At that time he was living in caves or wigwams, a savage and lonesome life, apparently unacquainted with the art of building, and roaming through forests, where the elephant, the hyæna, the hippopotamus, the rhinoceros, and the reindeer abounded. After some time a great flood spread over Europe and Asia and America, called the flood of the Loess, which was probably subsequent to the Noachian deluge. At this time not only had the tropical character of Europe disappeared,

The "Mer de Glace," a Glacier at Chamounix, which now exists on one of the spurs of Mont Blanc. These great ice rivers gradually push their way down the side of a mountain at the rate of a few yards each year till they reach the warm valley, where they form the source of small rivers.

but the so-called glacial age had spent its force, and had apparently been succeeded by a period of terrible floods and rains, as indeed might be expected from the melting of the glaciers, even had this cause not been aided, as it was in this case, by occasional depressions of some portions of the land.

You will remember that I explained to you that this glacial age* was an unexplained period of intense cold, which seems to have taken over Europe and North America for a long period, during which glaciers extended as far south as the prairies of America, the greater portion of Germany, Mount Atlas, and even Mount Lebanon, to the north of the Holy Land, and it is at the end of this great glacial period that man makes his appearance.

Now it is also generally admitted that the *first* place where man appeared was somewhere in the west or centre of Asia, in the neighbourhood of the Tigris, Euphrates, and Persian Gulf. You will see, therefore, that as the date of man's appearance is almost universally placed immediately *after* the glacial period, everything depends on our being able to fix this epoch with certainty. Unfortunately scientific men are here utterly unable to agree, some insisting on its having prevailed to within 6000 or 8000 years of our historic times, while others think it has passed away for more than 200,000 years.

If, however, the universal agreement to place

* See foot-note, page 91.

man's first appearance in the part of Asia I have named, and at the end of the glacial age is rightly founded, our first ancestors would not have found it easy to leave their primeval home. A great portion of Russia and Siberia would be under water and the rest of it under ice. The Himalayas and the elevated plateau of Thibet, would shut him out from China, the greater portion of which would also be under water; whilst towards Europe the glaciers of Lebanon, and the Mediterranean Sea, which extended not only over its present bed, but far up into Asia (where the Black Sea and the Caspian are its sole remains), and away into Africa, occupying the whole extent of the Great Sahara, would form effectual barriers.

As man, therefore, appeared first in Asia, it is there we must look for the first traces of developing intelligence—it is there, if anywhere, we must expect to find the skulls of the first savages and the missing links between man and the brute creation. Now, as a matter of fact, this search has been as unsuccessful here as it has been in Europe. The very earliest men in that portion of the world, where man is supposed first to have existed, seem to have known well how to build cities and use some of the arts of civilised life. Up to quite recent times the evolutionist used to tell you that the crust of the earth had very much changed, that some continents had sunk to the bottom of the sea, and that if you could examine such continents you would surely

find the remains you were in search of. Since, however, the voyage of the Challenger ten years ago, this plea has fallen to the ground, for the scientists on board this vessel have clearly shown that for a very long period the respective divisions of sea and land have been very much as they are now, and this specially applies to the more habitable portions of the globe.

You will see, therefore, that there is not the slightest shred of argument to prove that early man in the nursery of his race showed any of those bestial signs or indulged in any such habits as would betray an origin from brutes by evolution. At the same time let me press on you again that the truth of Scripture is by no means involved one way or the other in this question. We know not how the body of the first man was formed. That it had a lowly origin is evident, for it was made from the dust of the ground, but whether it was made of the ground or from the beasts that tread on it, is left for scientific men to discover, and was not in the province of the inspired writer to reveal.

You may, however, ask me whether the age of Adam cannot be definitely fixed from the dates given in the Bible. More than 200 different attempts have been made to gather from the Bible itself the exact date of the creation of man, and the conclusions arrived at have varied from, say 5600 years to nearly 9000 years ago, for you must bear in mind that the headings of your chapters and the

dates given in the reference bibles are no part of the Bible itself. They are simply human additions, and profess to be nothing more. The dates are guesses made by Archbishop Usher, which appear to be tolerably correct, and may generally be taken as approximately true. Another point, however, which renders it impossible for us to fix the date from the record before us, is the long period during which the Hebrew Scriptures had to be copied by hand—the very slight alterations or slip of the pen which would make very material differences, and the conduct of the Rabbis some *200* years before Christ, who, in the desire to get uniformity in their scriptures, are believed to have suppressed every copy of their sacred books they could lay hold upon but one which was adopted as the orthodox standard, and uniformity was obtained by destroying all other evidence.

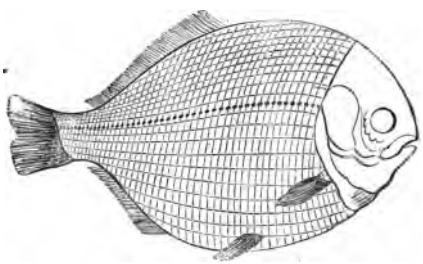
An infinitely small slip of the pen would make all the difference in Hebrew in writing 40 and 60, 80 and 20, 5 and 400, while the addition of two little dots to the top of the first nine numerals is sufficient to turn them from units into thousands. Thus two slight dots at the top of 1, 2, and 3 turns them into 1000, 2000, 3000, and so on. You will see, therefore, that for the exact age of man we must depend on the record of the earth itself, more than on any other, and at present, scientific men are so vastly at variance, that it is but little use for those who have not the education to make

original research to endeavour to settle the question for themselves.

Now let us turn for a moment from the special subject we have been considering to the great moral truths which we agreed to expect as the main object of Divine revelation. Have you noticed as we have been reading how Moses shows us step by step that all the gods of the heathen are creations of Jehovah? In those days men found objects of worship in air, and earth, and sea: the sun shining in its strength, the moon and stars beautifying the Eastern heavens; the teaming life of the Nile; the sacred calf of Egypt; the early patriarchs, such as Nimrod or Adam, were all adored and prayed to as gods. Of all these God claims to be the Maker, and replaces folios of legends, and the wisdom of the Egyptians, with the majestic words of the first of Genesis—He speaks as the uncreated—the all-creator—and yet as our Father. Starting from Genesis uniformly through the Scriptures God speaks of men as his children, and represents himself to be their Father, and we may leave without fear all question as to exact origin of the body of man to those who seek to be enlightened on the subject, taking refuge in the knowledge that whatever that origin be, God is not ashamed of it, nay, that when He himself desired to appear amongst us, and give us a special manifestation of himself, He took not on himself the nature of angels, but of the seed of Abraham.

It was a human body which was so filled with the spirit of God as to be called his Son, and it is a human body which now sits at the right hand of power, bearing that name which is above every name, and at which every knee shall bow.

Do you remember that verse in John viii. 2, where it is said of those who were listening to Christ —"They understood not that he spake to them of the Father"? Has that been true of any here this afternoon as we have been discussing the *whence* of our race? Have we remembered that in speaking of the great Creator we have been speaking of our Father, and that he specially claims us as his children and invites us to his home? Sons of Men, we are invited to become Sons of God too—with frail and corruptible bodies we are invited to put on the pure and incorruptible; sinful and prone to evil, we are offered the righteousness of God. What shall we say of those who turning back to the dust they have sprung from, try like the man with the mud-rake in the Pilgrim's Progress to seek out a treasure in the dirt, while they see not the crown of glory suspended within their reach? Do not turn away this afternoon from the voice of Him that speaketh. Do not forget, as you bend your knee and address the Almighty God, that you are talking to your Father; and as we go away from this hall and part with each other let us feel that it has been good to have been here—let us indeed realise that we have been communing with our Father.



Fish of the Carboniferous Period. See page 184.

VI.

THE CRADLE AND THE GRAVE.

WHEN last we met we considered a portion of the evidence which existed as to the antiquity of man, and I promised you that we would go somewhat further into the matter this afternoon. Last week we saw that in Europe man had been found in caves under stalagmite floors, and great differences of opinion existed as to the length of time which the stalagmite took to form. We saw then also that the age of the gravel drifts in which the bones of men were found were subjects of dispute as were the dates when the mammoth and the elephant disappeared from England, and the length of the period when primitive man used stone implements only. I tried to show you in the first instance what I must ask you to remember also this afternoon, that our Bible really does not give us any very definite information on the subject; and that in the portion of the world where the Bible and Science unite in considering the cradle of the human race, viz., somewhere in the neighbourhood of Mesopotamia, or the southern and western portion of Asia, no evidences have been found of any stone age having existed. The earliest men that existed there seem to have understood

the art of building cities, while even in Europe, where men lived in a much more savage state, some of the most ancient skulls discovered are fully as well formed, and seem to show a mental capacity at least equal to those of the Europeans of the present day. I will now deal with three or four other points that are touched upon in connection with the antiquity of man, and this afternoon we shall be able to get through all the evidence which I think it will be necessary for us to consider.

We will commence with the ancient histories of other nations, for I have been asked by some of our members if it is not a fact that the histories of China and Egypt go much further back than that of the Jews. Let us take China first.

At one time the history of the Empire was thought to go back an almost fabulous number of years, now, however, it is pretty well admitted that no reliance can be placed on any dates earlier than say a little over 2000 B.C., while some Chinese scholars go so far as to state that 800 B.C. is the extreme limit of credible history. Now as regards Egypt. About the only thing Egyptian scholars are agreed about is that a certain king called Menes is the first really historic character that appears in Egyptian records. More than one German scholar has put this king as living some 5600 years B.C., that is to say, about 1600 years further back than Archbishop Usher puts the creation of Adam according to the Bible, or about 1400 years after the creation of

Adam, according to other Biblical students. On the other hand, Mr. Birch, the head of the Egyptian department in the British Museum, puts the date of Menes at 3000 B.C., or, roughly speaking, about the date of the deluge; while Mr. Poole, another British Museum authority, puts it at 2700. We see, then, that there is a difference of 3000 years between the various estimates as to the date of the reign of this King Menes. To give you an idea of what this means, it is equivalent to one man saying that Mr. Gladstone lived at the same time as Queen Victoria, while another man would say he was contemporary with Moses!

The fact is, the Egyptians seem scarcely to have been aware of the use of dates and chronology during the earlier period of their history, and we are almost entirely dependent on the statements of a certain Egyptian priest,—Manetho by name—who lived about 300 years before Christ, and whose facts are constantly proving at variance with the inscriptions found on the rock records of the kingdom of Egypt. Another great cause of the difficulty of fixing Egyptian chronology is, that it was not an unusual thing for the ancient kings to associate their sons with themselves on the throne during their later years. In such a case the full number of years which each king occupied the throne is put down, causing great confusion. For instance, supposing a certain king reigned sixty years, and during the last thirty years of his reign his son was associated

with himself in the empire, and that after his death, his son reigned twenty years; according to the Egyptian mode of counting, one king would have reigned sixty years, and the other fifty, making the two reigns 110 in all, whereas, the actual time occupied by the two kings' reigns, would have only been eighty years.

The Indian traditions are equally unable to help us. The earliest event of which we can find any definite trace in Indian history, is the descent of the children of Japhet (known to ethnologists as Aryans) about 2000 B.C., across the Himalayas, into the plains of India, which they inhabited and colonised, being the fore-fathers of the bulk of the Indian races of the present day. Equally unable to help us are the records of Babylonia, the earliest of which, according to the late Mr. George Smith, of the British Museum, commences about 2500 B.C.

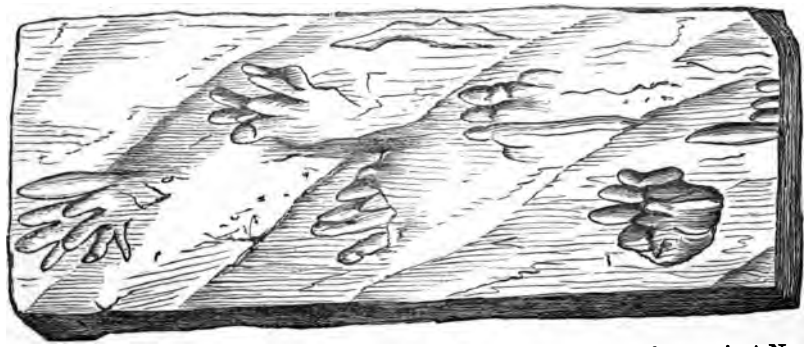
Another direction in which men have sought a solution of this difficult question is that of language, the argument being that the languages of the various portions of the human race are so different that an enormous space of time is necessary to account for their great divergence. This argument, however, seems to be far from conclusive. Max Müller and others have studied the science of language during the present generation as it has never been studied before, and they have shown how nearly all existing tongues or, perhaps I ought to say, the

tongues of all civilised races, can be traced back to Sanscrit. We have seen that the earliest event in the history of India was the descent of the Aryans or children of Japhet from the Himalayas to the plains of the great peninsula. They spoke a tongue very much resembling Sanscrit which, besides being the parent of nearly all the dialects of India, likewise forms the foundation of ancient Persian, of Greek, of Latin with all its various branches, such as French, Spanish, Italian and Portuguese, of German, English, Scandinavian, Celtic, and every language spoken in Europe, with the exception possibly of Hungarian and Basque. Max Müller states his belief that if two tribes speaking the same language, but having no literature, were to be separated, and have no communication, in a very few generations their respective languages would be unintelligible to each other.

In Europe we have several examples of modern languages having sprung from one common root in historic times. For instance, after the Saxons had settled in England, the Scandinavians colonised Iceland; now, however, Icelandic is a distinct language, while Scandinavian itself is split up into three different tongues, viz., Danish, Norwegian, and Swedish. In British Guiana we have only 6000 Red Indians, but they talk seven distinct languages, while no less than 100 different dialects exist in the Caucasus alone, and 200 among the various tribes of the Malay penin-

sula and islands. We see, therefore, that however useful language may be in enabling us to verify the Bible statement, that the world was colonised from one Asiatic centre by men who originally spoke the same tongue, it is perfectly incompetent to definitely fix the date for which we are in search.

You will remember last Sunday we saw that the drifts and rocks of Asia had yielded no evidence of primeval and barbaric man, such as would form a link between the human race and beasts. To show you, however, how often the ablest men may get mistaken as to the value of traces of early man, I may tell you that during the present century a Mr. Horner took to boring in the mud of the Nile to see if he could find any traces of man under the mud, brought down by that immense river. At thirty-nine feet from the surface, he succeeded in discovering the skeleton of a human being, who was forthwith credited with having lived from 10,000 to 60,000 years ago, no meaner authorities than Sir John Lubbock and Sir Charles Lyell looking upon his great antiquity as certain. The argument, of course, was that the Nile deposits its mud at the rate of so many inches each century, and that from such data you can easily fix the period at which the skeleton 39 feet down was first exposed to its action. The reasoning seemed plausible enough till, much to the discomfort of some of the wiseacres, about four feet below the skeleton of this wonderful primeval man, was found



A slab of stone showing ripple marks of the ocean and the foot-prints of an ancient Newt-like animal that existed in the latter part of the Carboniferous Period. Found in the coal measures of North America—one eighth natural size. See foot-note, p. 128.

a brick bearing the date of Mehemet Ali who was contemporary with Napoleon Buonaparte and Lord Nelson.

We see, therefore, as the result of our present enquiry, that scientific men are at present by no means agreed amongst themselves as to when the first man did make his appearance on this planet, nor as to his capacity for thought, his knowledge of civilised arts, or his likeness or unlikeness to the beasts that perish. The only one thing that is clear is, that not the smallest trace of anything approaching a connecting link between a man and an ape has yet been found, or rather perhaps I should say, that nothing more like an ape has been found than is a negro or bushman of the present day. Now this is not my statement. Amongst the disciples of Darwin, no man is more prominent for his assertion of Darwin's theory, and for his qualifications as a naturalist, than Alfred Wallace. I would like to read you what he says. He writes as follows: "It is a curious circumstance that notwithstanding the attention that has been directed to the subject in every part of the world, and the numerous excavations connected with railways and mines, no advance whatever has been made in deducing the mode or time of man's origin, ... and amid the countless relics of a former world that have been brought to light, no evidence of any one of the links that must have connected man with the lower animals has yet appeared."

The reasoning is certainly curious, and shows to what lengths even the ablest men will go when they want to prove a hobby. Wallace admits that there is "no evidence" of any link between man and beast, and yet in the very next line says that such links "must" have existed. Personally I do not see any "must" about it. If such links ever did exist, it is for Mr. Wallace and his followers to produce them; and considering the manner in which the crust of the earth has been searched in every direction, and the abundant traces of hundreds of extinct animals which have been discovered—no less than 1300 species of insects in the rocks formed during one geological period alone—the non-appearance of the "missing link" is pretty good *primâ facie* evidence of there never having been any.* At any-rate we prefer Mr. Wallace's admission that there is "no evidence" of it to his assertion that it "must" have existed. One more authority who will be equally satisfactory to the disciples of Darwin, and we will leave the subject, The one I will quote from is Prof. Huxley. He says that between man and the lower beasts there is an "enormous gulf," an "immeasurable distance, practically infinite." As soon as scientific men are prepared to bridge that gulf, to find the starting

* The plate facing page 128 will show that the very ripples of the primeval oceans have been preserved. Other stones show the impress of the rain which fell on the soft sand ages ago. Why should records of the missing link alone be wanting?

point of the divergence, and to give finality to what they deem to be infinite, we may then be called upon to admit our relationship with the lower animals. Till then, as we are taught definitely as regards our bodies neither by the Bible nor by science, we leave the question an open one for wiser heads than our own to settle, the burden of proof being of course with those who wish to establish any special theory. At present the ultra-Darwin school have by their own admission no positive fact to rest upon, and we may well decline to accept mere assertions on such a subject.

There was one point in connection with the origin of man which used to present considerable difficulties to me. It was this—If the comparatively savage European races were descended from those Asiatic ancestors whom we saw were builders of cities in ancient times, the human race must in some places have deteriorated. Is there any evidence in history of such deterioration going on? in other words, do certain climates cause the human race to deteriorate? Now I have very little doubt that the Anglo-Saxon race would lose much of its energy if it lived constantly in a tropical climate. For instance, families that have lived for many generations in Barbadoes are, as a rule, decidedly inferior in physique to the parent Anglo-Saxon stock, and the poor whites—redlegs as they are called there—partly owing to intermarriage and partly through the climate, possess scarcely any of the ordinary attributes of an Englishman. In addition to this,

Herodotus tells us of a Greek people who were expelled from the neighbourhood of the Black Sea, and driven northwards towards a more inclement climate. These people in his day were living in wooden huts, speaking a kind of mongrel language, half Greek and half Scythian, and we find them a hundred years after Christ thorough-going barbarians, using the skins of animals, which they had killed in hunting, for their clothes, and, in fact, in very much the same state as our ancestors were before the advent of the Romans.

I will give you one more instance, the most satisfactory of all. You will remember that we said the Aryan or Japhetic race, from which we have ourselves sprung, overran India and settled down in that country. A portion of them penetrated as far as Ceylon, and some of their descendants now live there in the woods in a most degraded and bestial condition, wearing absolutely no clothes, and living lives but slightly removed from those of the brutes that perish. These Veddas, as they are called, are almost as low in the scale of civilisation as any human beings you could find, and yet, the word "veddah" is the Sanscrit for hunter, and competent judges pronounce their language to have been derived entirely from the Sanscrit, and, consequently, the people themselves to have belonged to the Aryan stock, and to have the same origin as ourselves.

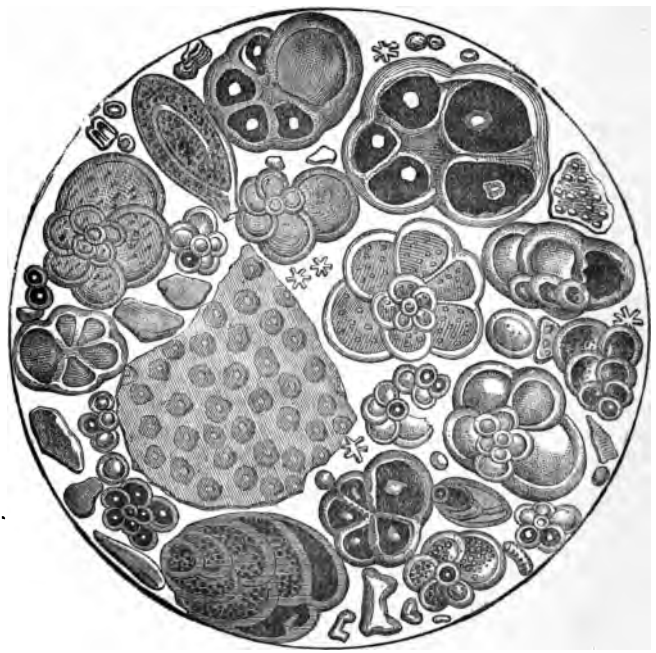
It is no strain upon our credulity to believe that races may deteriorate if they go to climates

unsuitable for them. For instance, could any possible race arrive at the civilisation of England, if they lived in the cold wastes and hungry wildernesses inhabited by the Esquimaux, or, to go to the other side of the equator, by the dwellers in that island known as Terra del Fuego? Of it Darwin says—"It is a broken mass of wild rocks, elevated hills, and useless forests, and these are viewed through mists and endless storms. The habitable land is reduced to the stones on the beach. In search of food the people are compelled to wander unceasingly from spot to spot, and so steep is the coast that they can only wander about in their wretched canoes." Ships' crews that pass through the Straits, tell us of the degraded savages inhabiting this wild pitiless island, as being cannibals, thieves, and most depraved wretches. What else could we expect them to be, their climate making their very existence a constant struggle with nature, and home, with all its refining and civilising influence, almost an impossibility. Certainly these races must have deteriorated, and probably the stunted Fuegian sprang from the same stock as the tall and well-formed Patagonian, or some of the other more civilised races on the mainland, from which they would have been driven in some long forgotten war.

While, therefore, we can see several cases of civilised races getting less civilised, or more barbarous, can we bring forward from the entire range of history a single instance of a barbarous race

having been civilised from *within?* If we turn to our own land, we find we owe our civilisation to the Romans—the Romans to the Greeks—the Greeks to the Egyptians. To what influence, then, did early man owe his first civilisation? To us who believe him to be the child of God, who believe that he possesses a soul, and is the inheritor of powers and capacities utterly different from those of the beasts, the fact that a Father's hand guided his infant footsteps, presents no possible difficulty; but to those who would shut God out of his own universe, and who would deny any substantial difference between man and the beasts, the impossibility of pointing to a single case of a self-elevated race, presents very considerable difficulties.

Before we absolutely leave the question I should like to point out to you that it is not at all clear from the Bible record that Adam was the first man at all. In the 1st chapter and 26th verse you will find the story of the creation of man—that the human race was created male and female and fairly launched into existence. In the 2nd chapter we get another account which must either be taken as a kind of separate story of the same circumstances, or else as a tale of a special development of a special man. Personally I believe in the latter theory. You will find God there states it is not good for *the* man to be alone, and we read of the provision made to supply him with a companion meet for him. Long before the creation of Adam and Eve, however, we are told of the existence of men and women; so



Slice of Chalk from Cartolica (Sicily), highly magnified, showing it to be composed of minute shells.

it appears to me to be at least probable that Adam was not the first man, but was only a special or representative man, educated by God's providence out of the lower races, or else in some other way formed for a distinct and wise purpose.

I have no time to go much into the subject now, but no doubt you have often been asked the question as to who was Cain's wife? I think it at least as probable that Cain going forth married some of the lower races who had been made before Adam, as that he married some of the other children of Adam not mentioned in the Scriptures. I do not say this is in any way a certainty, I throw it out as a suggestion, as the Bible, at any rate, does not exclude the supposition. If this supposition be true, man might be of almost indefinite antiquity, for all the Bible dates culminate in Adam, just as all Bible types culminate in the second Adam—Christ Jesus. When you get home read through the 1st and 2nd chapters of Genesis carefully, and you will see the difference between man spoken of in the 1st chapter, and *the* man spoken of as Adam very distinctly.

We may be the more easy on this score when we bear in mind the condition in which the Bible represents Adam to have dwelt. It seems to me that very unscriptural views on this point are sometimes inadvertently put forward by some sections of the Christian Church; and our first parent is set forth as a perfect character, and as being a highly developed, civilised, and god-like

man. If, however, we are to accept the Mosaic account, Adam was a being very different from this. He was, as regards his mode of life, though not as regards nature, a savage, living in a climate where clothing was unnecessary, where the earth brought forth abundantly as it does now in some parts of the tropics, such fruits as are necessary for the sustenance of human life, not so much as the reward of human labour as a spontaneous gift from an almost too bountiful nature.

This man, as I have said, was, as far as his mode of life was concerned, a savage, *i.e.*, he was unacquainted with the use of metals just as we have seen the earlier races inhabiting Europe made use of stone implements only; for if you turn to Genesis iv. 22, you will find that Tubal Cain was the father of every artificer in brass and iron. He was unacquainted with the simplest rudiments of music, for in the same chapter, verse 21, you find that Jubal was "the father of all such as handle the harp and organ," and his religion, in spite of his wonderful privileges, was probably but a rude, and not very loving monotheism, for we read in the last verse of the fourth chapter, "then began men first to call on the name of the Lord." I call attention to these facts to show you that science and the Bible alike present to you a man far removed indeed from any of the lower animals, but at the same time nothing than a man such as we are, though possessing great capacities which he afterwards misused.

Chalk from Gravesend, highly magnified, showing the minute shells of which it is composed.

Any further consideration of this we must leave for the next two Sundays, which I propose devoting to the fall; but there is one point which may perhaps have presented a difficulty to some of you, and which comes fairly within the scope of our subject this afternoon, viz., to what extent death was the result and punishment of Adam's sin.

If there is one thing certain beyond another, it is that death existed, and was the natural outcome of both animal and vegetable life, millions of years before Adam was created. This is an undoubted and unquestioned fact. We have seen that the chalk cliffs of England are the result of death overtaking countless, minute, once living organisms, and the remains of thousands of different species of animals who were brought to perfection, and died long before man made his appearance on the earth, render it perfectly clear that the law of death has existed ever since life made its appearance on our globe.

How, then, is it true that death is the result of sin, and that the special curse attached to Adam's transgression was—"In the day thou eatest thereof thou shalt surely die"? Here I must turn back to the original Hebrew for a moment, and tell you that the term, "thou shalt surely die," is a very strong one. It is literally "dying thou shalt die," just as God afterwards speaking to Abraham, says —"Blessing, I will bless thee, and multiplying, I will multiply thy seed," meaning that Abraham should be specially blessed and cared for.

To Adam, therefore, the message came, Dying thou shalt die, *i.e.*, you shall specially die. Are we then to believe that if Adam had never sinned he would never have died? I, for one, do not suppose that, for we are not specially told that Adam would have been exempted from the ordinary laws ruling over the rest of the animal creation, unless, indeed, the presence of the tree of life be thought to hint at such a conclusion.

I see nothing in the Scriptures to lead me to think that Adam would not have died, but he would have died in such a fashion that death would not have been death but translation. Being, as we believe him to have been, a man blessed with special communion with God, we may well suppose that when the time for his departure drew near, and the body with which he had been clothed grew no longer able to act as a tabernacle for his spirit, he would have closed his eyes on this world in the sure and certain hope of eternal life, knowing that He whose face had made Eden a garden of God, would welcome him in a purer and fairer Paradise than he had ever known, and that the leaving his body was merely the passing of his soul to the presence of his Father. But when Adam sinned all this was changed, and dying then indeed was to die. Sin had come in as a barrier between him and his God, and in the future the valley would be dark, the next world a terrible one, and in place of his Father a dread unknown judge.

And has not sin done this? Has it not raised

up a barrier or wall between man and God till priests have clothed the future with horrible and fearful fancies, so destroying "a God of love and mercy" as to represent him as being glorified in the damnation of his own creatures! Surely dying thou shalt die is a true result, and not the least terrible one, of human sin. I think this view not only a reasonable one, but it is the apostolic one also. You will find death spoken of as a temporary thing, as a thing which Christ has conquered and put away. For instance, turn to 1 Cor. xv. 21, 22, you will read—"As in Adam all died, so in Christ shall all be made alive," as much as to say that the death which came to Adam has been annihilated by Christ. In Romans v. 12 you find the same thought brought out, "By one man sin entered into the world, and death by sin, and so death passed on all men, for that all have sinned . . . so by the righteousness of one, the free gift came upon all men unto justification."

Looking beyond death in this light, Paul could say (2 Cor. v. 1), "We know that if the earthly house of this tabernacle be dissolved we have a building of God, a house not made with hands, eternal in the heavens;" or, he could sing, "Oh death, where is thy sting! oh grave, where is thy victory! The sting of death is sin." Perhaps the truth is most clearly brought out in Paul's epistle to Timothy, wherein (Tim. i. 10) we find "Christ has abolished death, and brought life and immortality to light through the gospel." Were it only

natural death spoken of, *i.e.*, the dissolution of our bodies, this statement would not be true; but Christ *has* abolished death to the Christian just as Adam introduced death into the world. I hope I am making my meaning perfectly clear. Adam's sin made death a thing of terror, dread, and fear; it was no longer the passing of a child into the presence of his father, but it grew to be something which threatened him with extermination and ruin.

Through long dark ages this fear oppressed the dying body, lighted up occasionally by the translation of such men as Enoch and Elijah, till Christ, coming to conquer death, brought clearly into the light "life and immortality." He passed through the grave himself, and standing in the midst of his disciples, he told them, as one who had come back from its gloomy portals, that even there was "peace" to them that loved the Lord. He told them with no faltering voice that he that believeth on him should "never die": he pointed out to them that in himself "all should be made alive," that "because he lived his brethren should live also," and so Paul, with his spiritual mind catching up the truth as he so often does, affirmed that Christ hath "abolished death and brought life and immortality to light through the gospel."

He abolished it in somewhat the same sense as education has abolished the witch. A century or two ago if a child were ill or a horse died the people would think that someone with an evil eye had cast a charm upon the one, or cursed the other; but,

with the light of knowledge and education, we have abolished witches, not by hanging all the ugly old women (we should have had enough to do), but by showing that they had no power over life and death, and that the death of the child, or the sickness of the horse, arose from other causes, mainly within our own control. Another thing you must remember is, that Adam's sin never changed God's nature, though it ruined his own appreciation of it. Life and immortality were always there—love was always the name of the Father, but Christ brought it to light. He came from the bosom of the Father to declare his Father's name amongst men—to tell them that man was a living soul, that over him death had no power, that life, a pure, endless, and hopeful life, lay before them full of possibilities of development and service, of which on this side of the grave they had no conception.

One word before we finish. How did Christ do this? He did it through the gospel, through the good news that he came from heaven to tell us—the story that God is the Father of every human being that treads this sin-stricken earth, that none are too pure to need or too sinful to come unto him, that the penitent heart and seeking soul are surer passports to his presence than the purple cloak of a king or the proud self-righteousness of a Pharisee—to tell us, in fact, that "whosoever will, may take of the water of life freely." It is true, then, beyond all manner of doubt, that the result of sin has been to create

in death a terror, which, but for it, would never have existed. It is also blessedly true that Christ has abolished that terror, robbed death of its sting, and the grave of its victory, and restored to us that knowledge and love of God which our own wilful sin had hidden from our eyes.

Has this been the result of the gospel upon you? Have you found in Jesus a new and living way, which has enabled you to come boldly to the throne of grace and find help in time of need? If so, then for you indeed has Christ "abolished death," and the dark waves of Jordan shall part before your feet as they did to Israel of old when, with a shout of victory, they entered their promised land.

But it may be—nay, I fear it is—that for some of you this gospel has as yet no blessing—this message no sweetness. Light and joy indeed there is, but you have no share in it; redemption, but it has not reached you. Oh that I could draw you this afternoon from gazing at the ruin of the first Adam to share in the victory of the second Adam. Sad will it be if on that great day, when you stand in his presence who died to redeem you from the curse of sin and the power of the grave, the record over your lives, traced on the rock of the irrevocable past, should be—"I would, . . . but ye would not."

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